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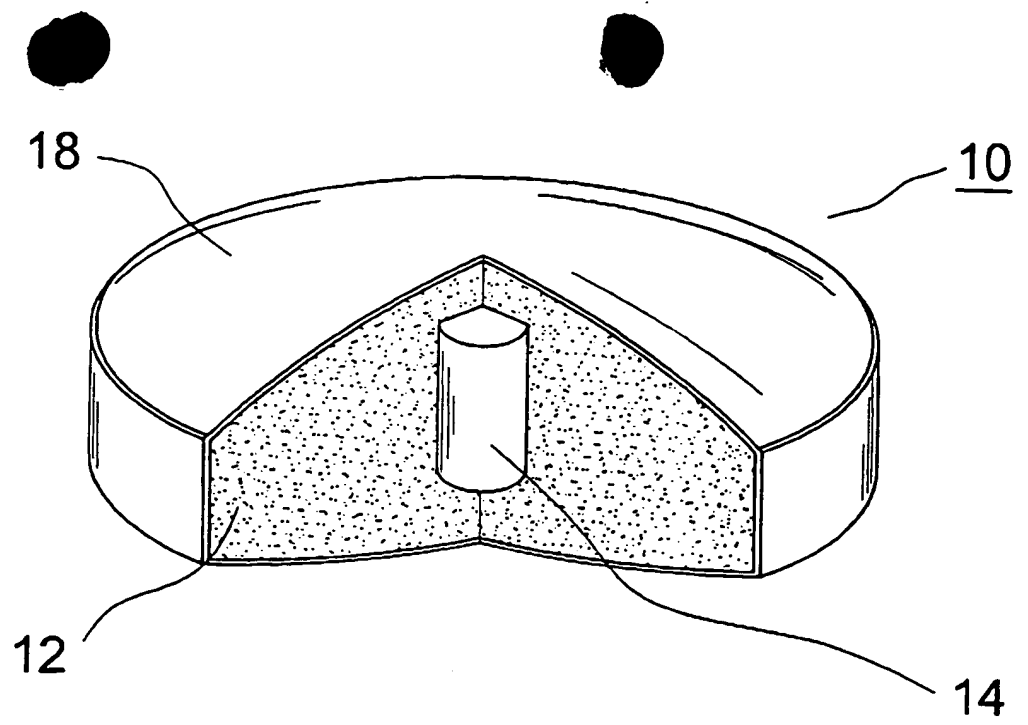


FIG. 1A

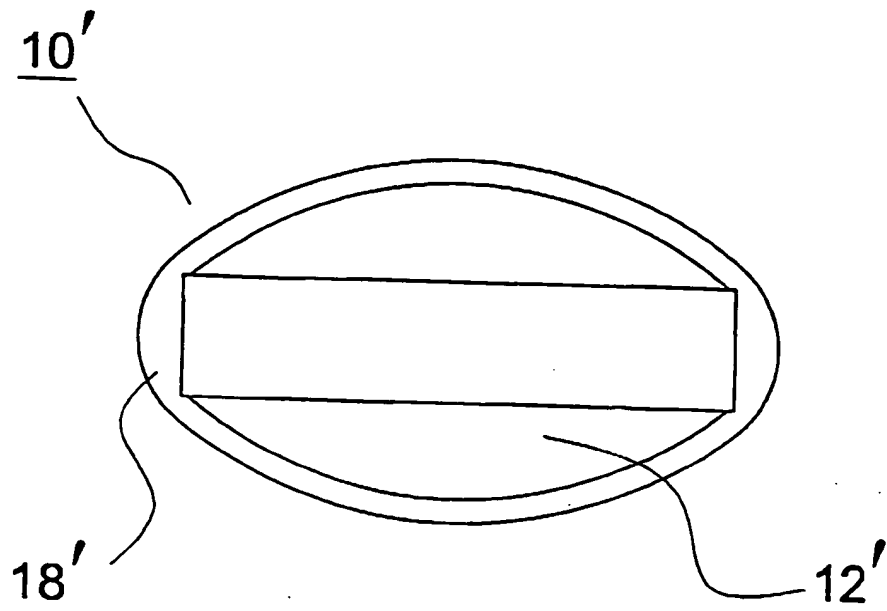


FIG. 1B

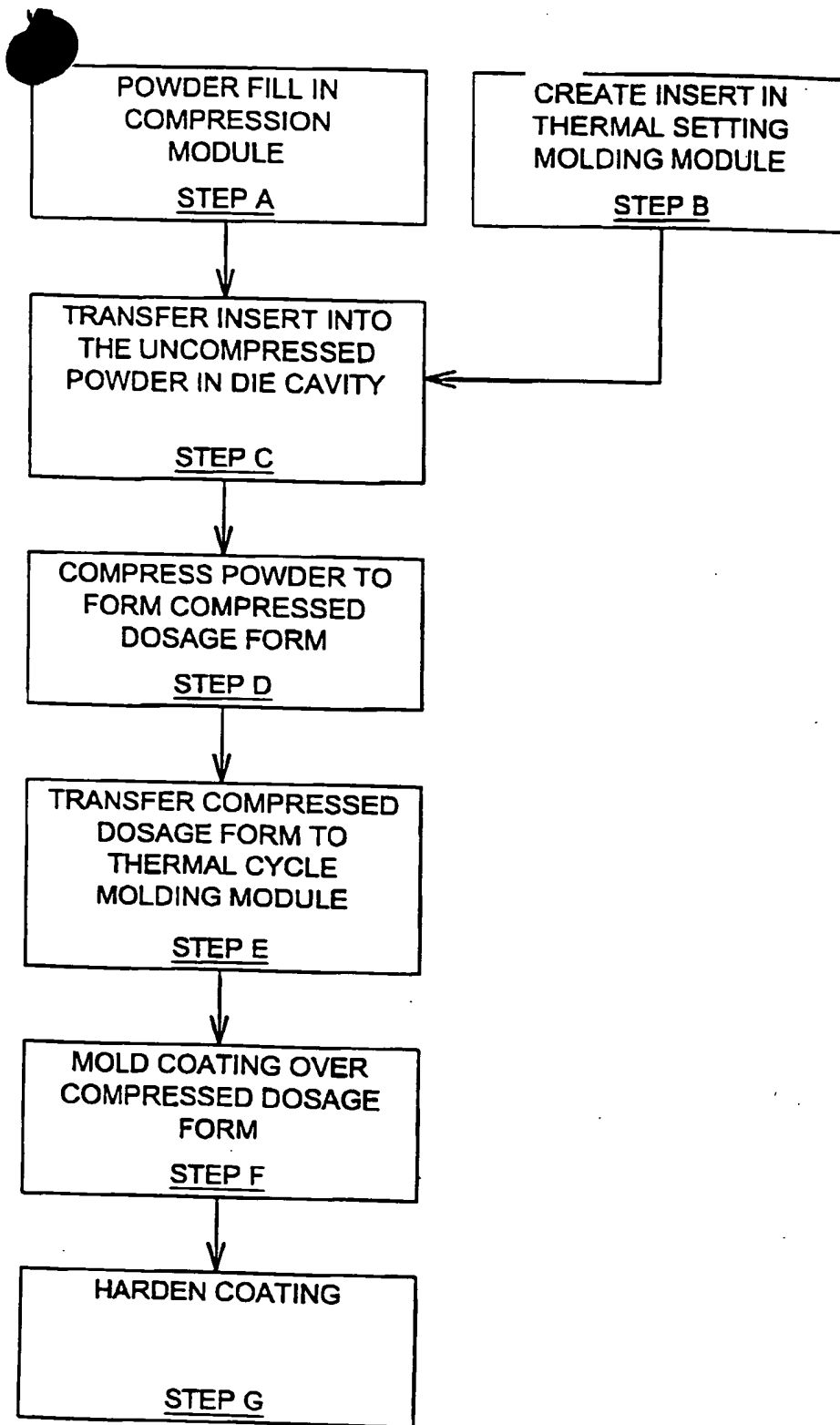


FIG. 2

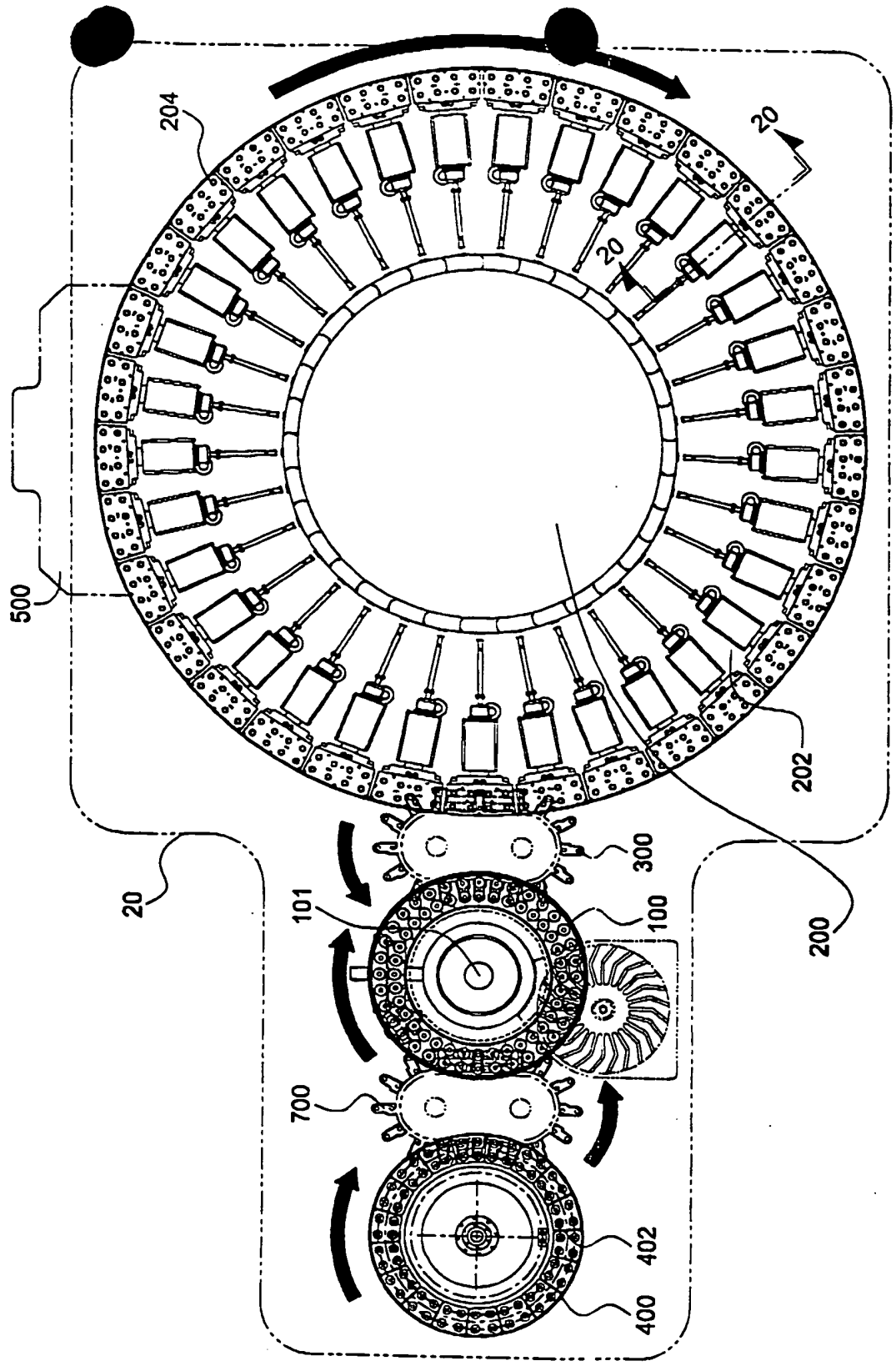


FIG. 3

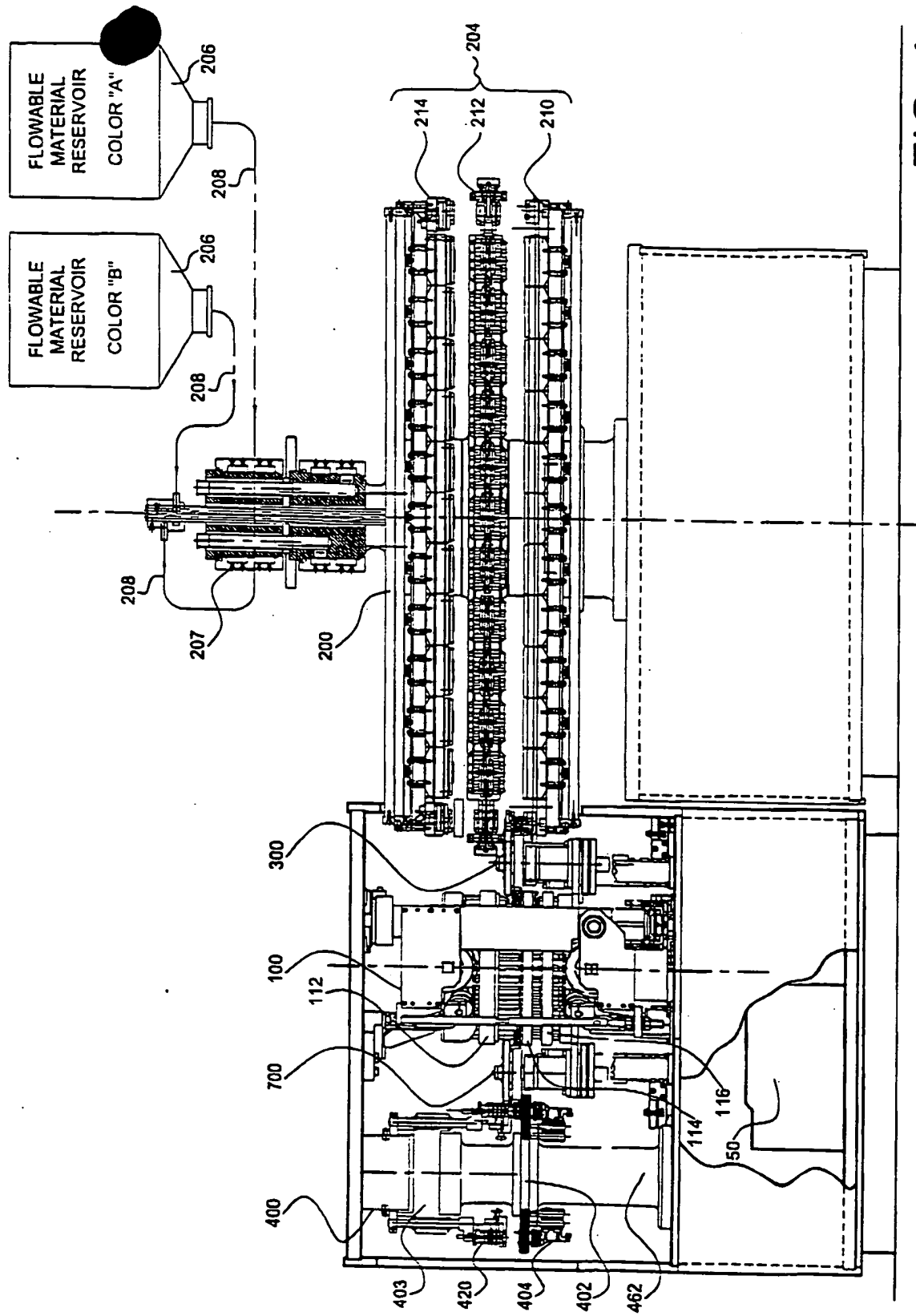


FIG. 4

FIG. 5

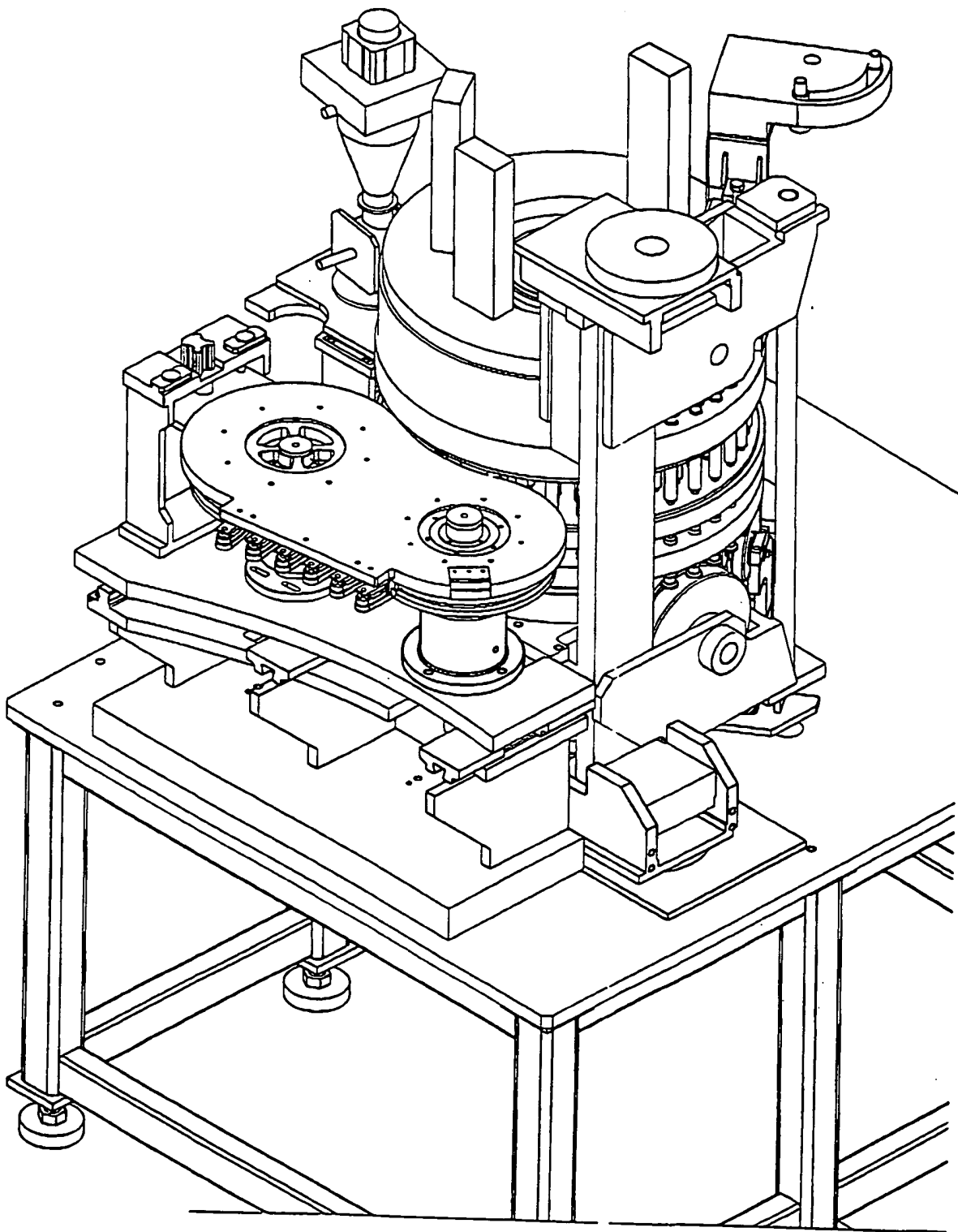


FIG. 5

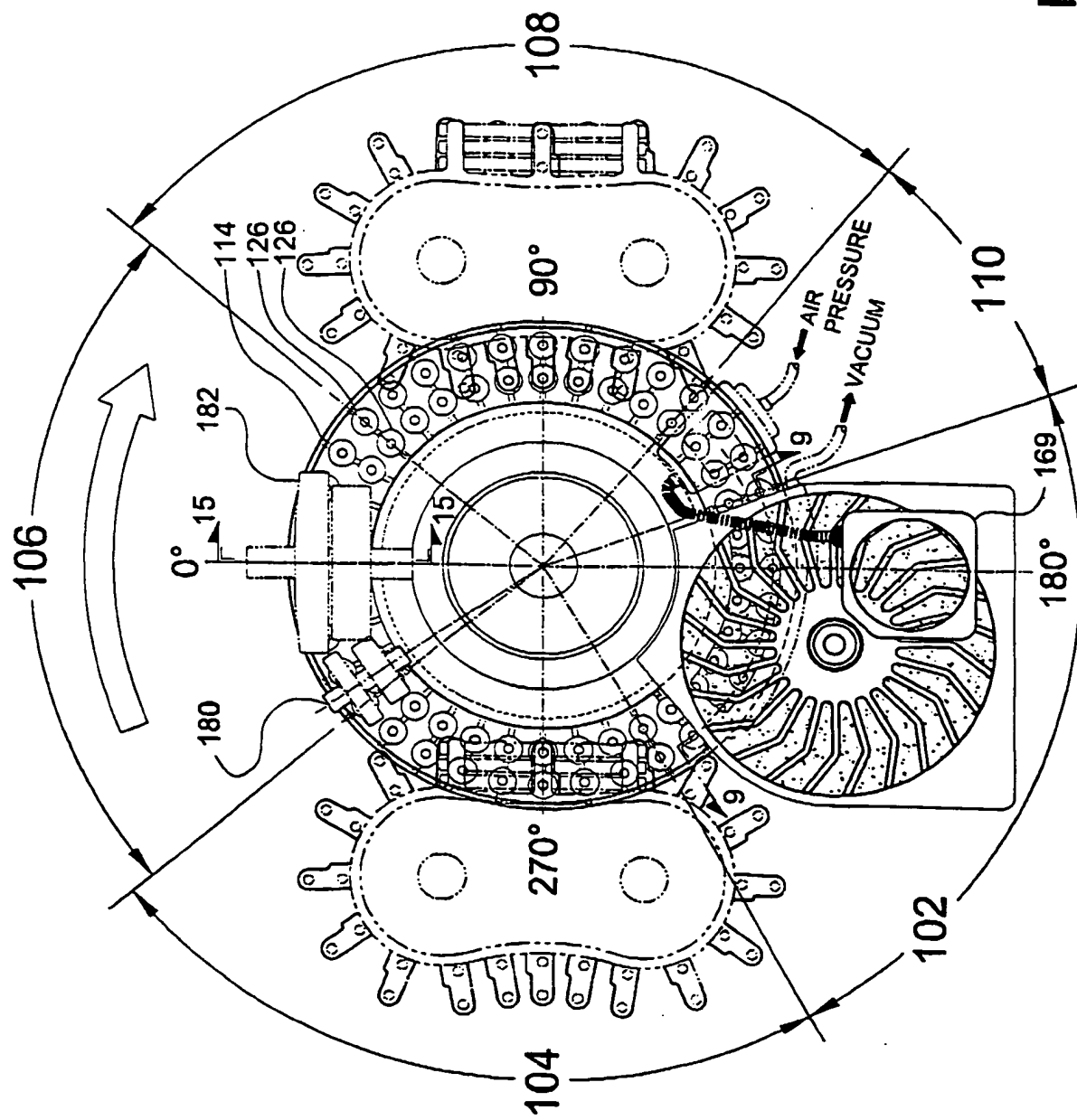


FIG. 6

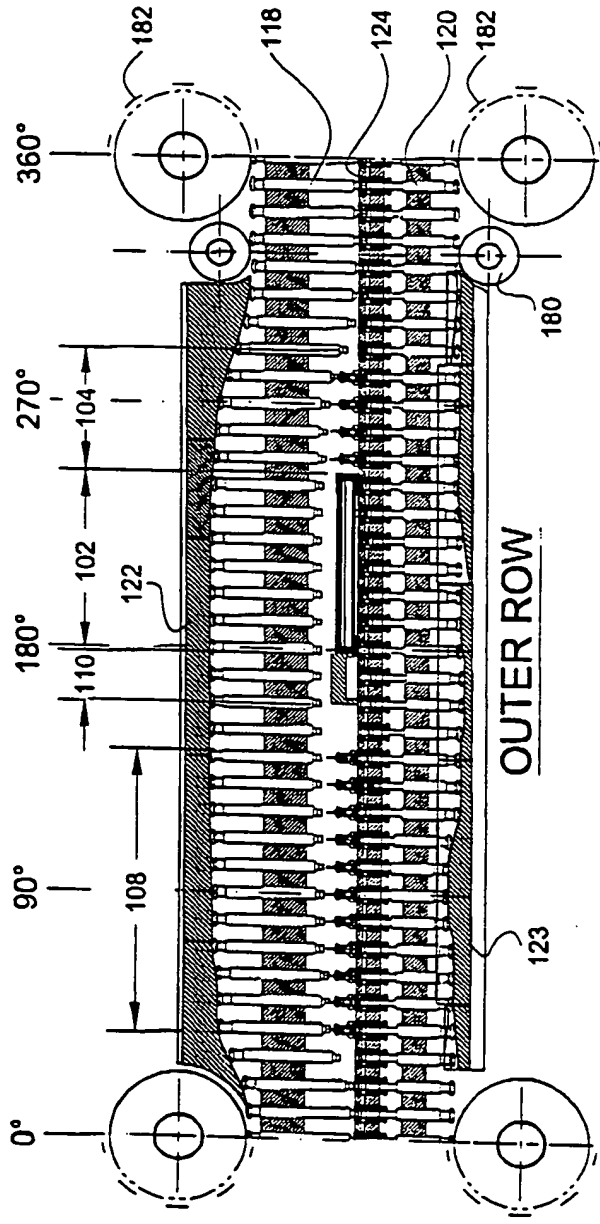


FIG. 7

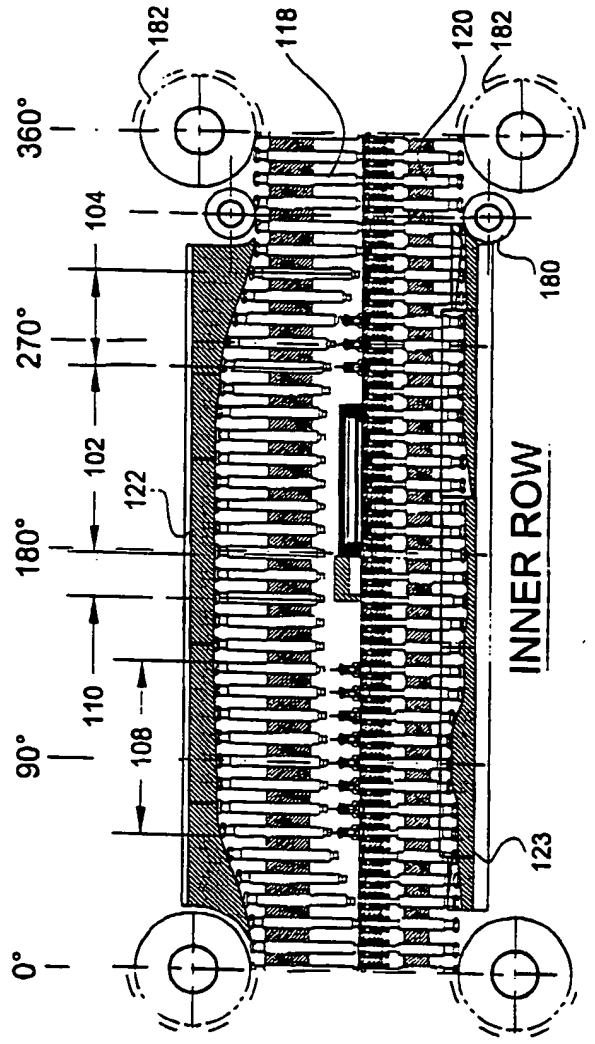


FIG. 8

[illegible]

FIG. 9

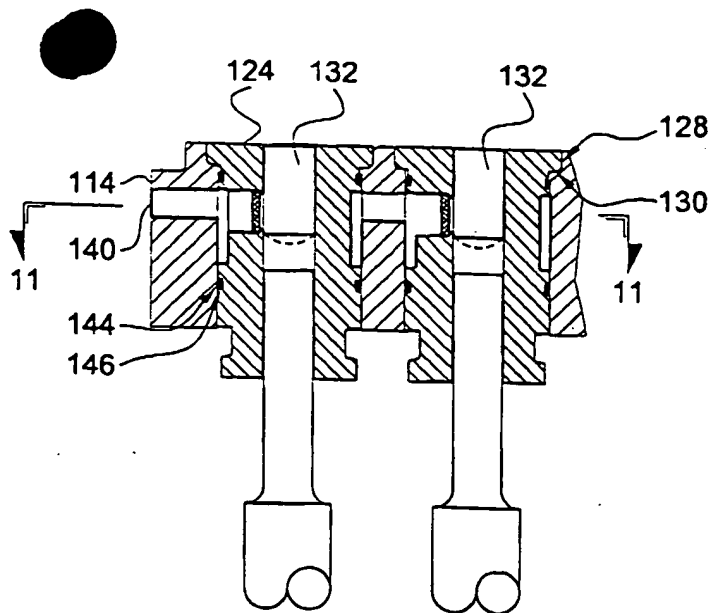


FIG. 10

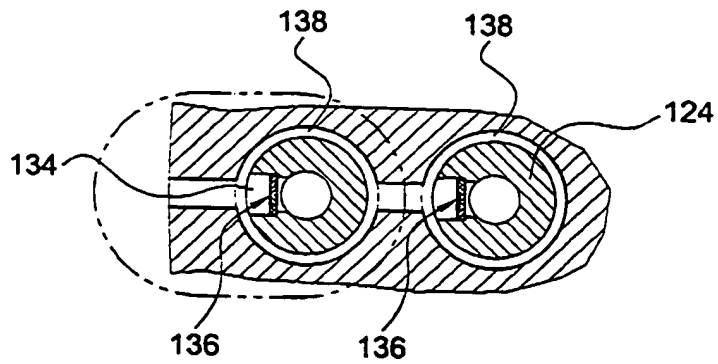


FIG. 11

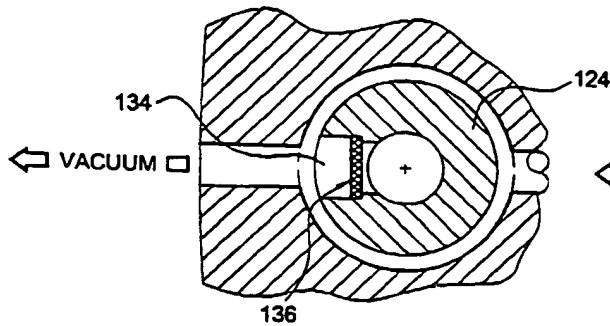


FIG. 12

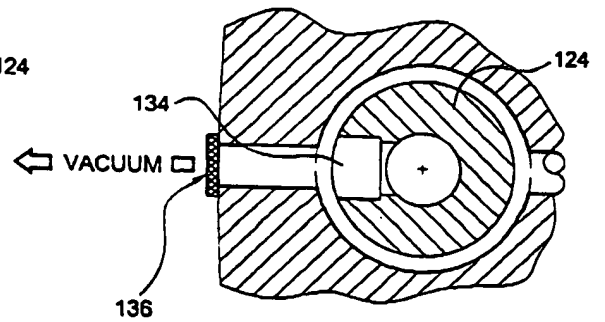


FIG. 12A

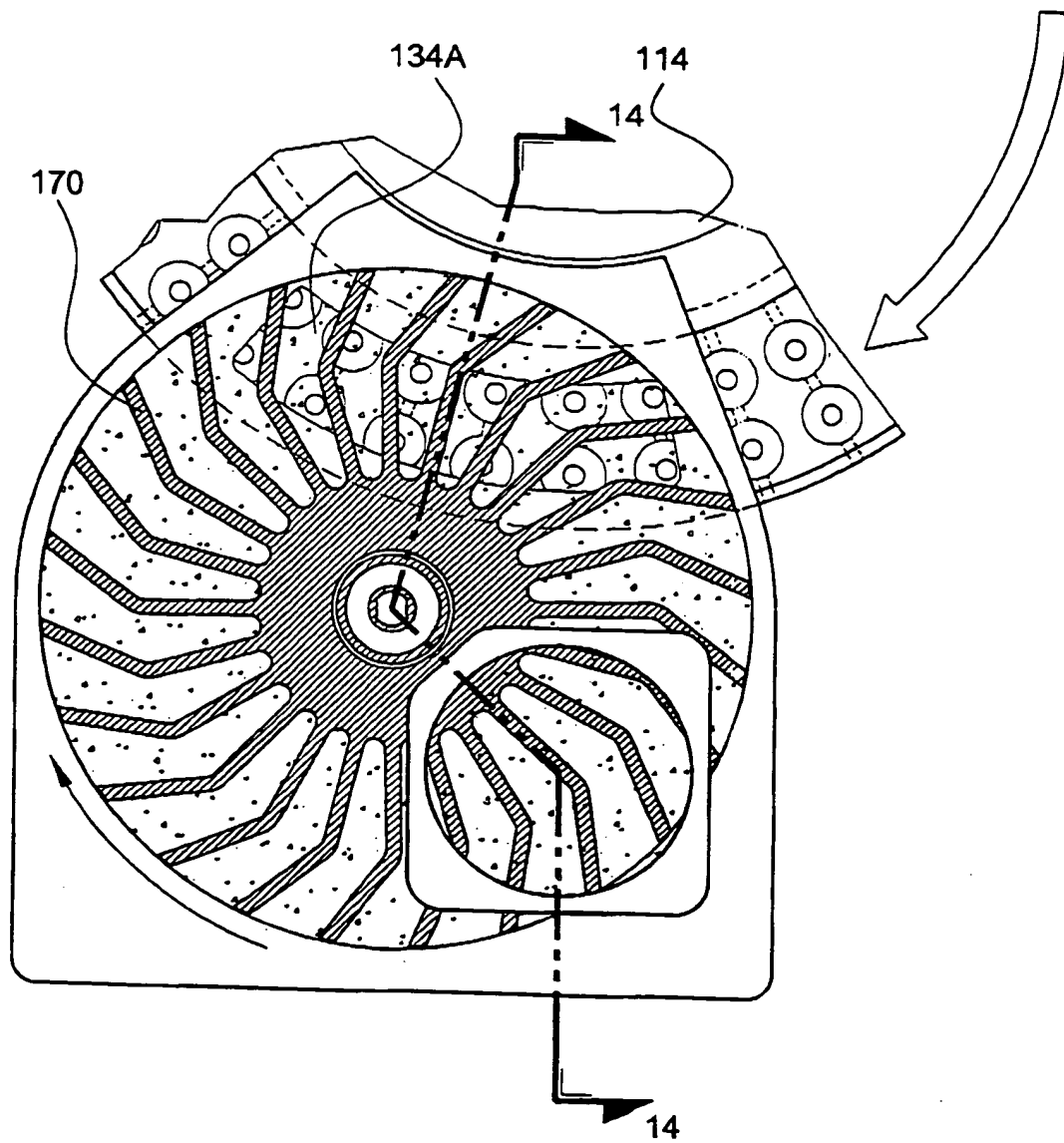


FIG. 13

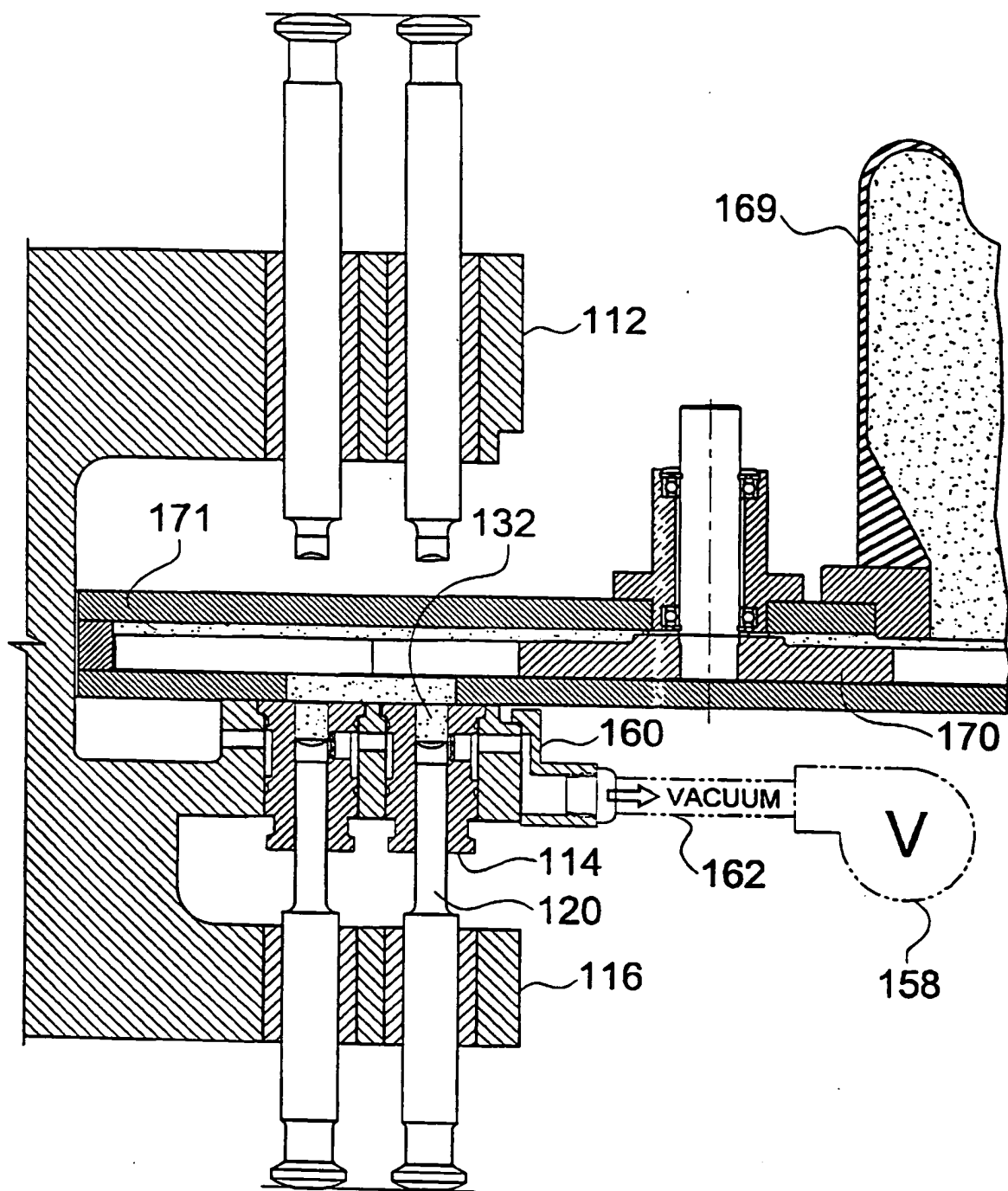


FIG. 14

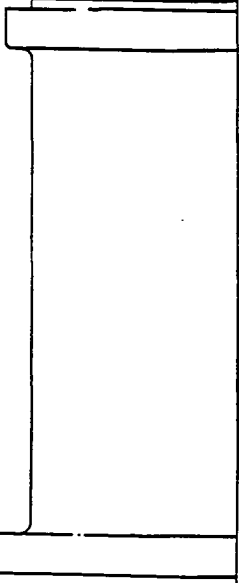


FIG. 15

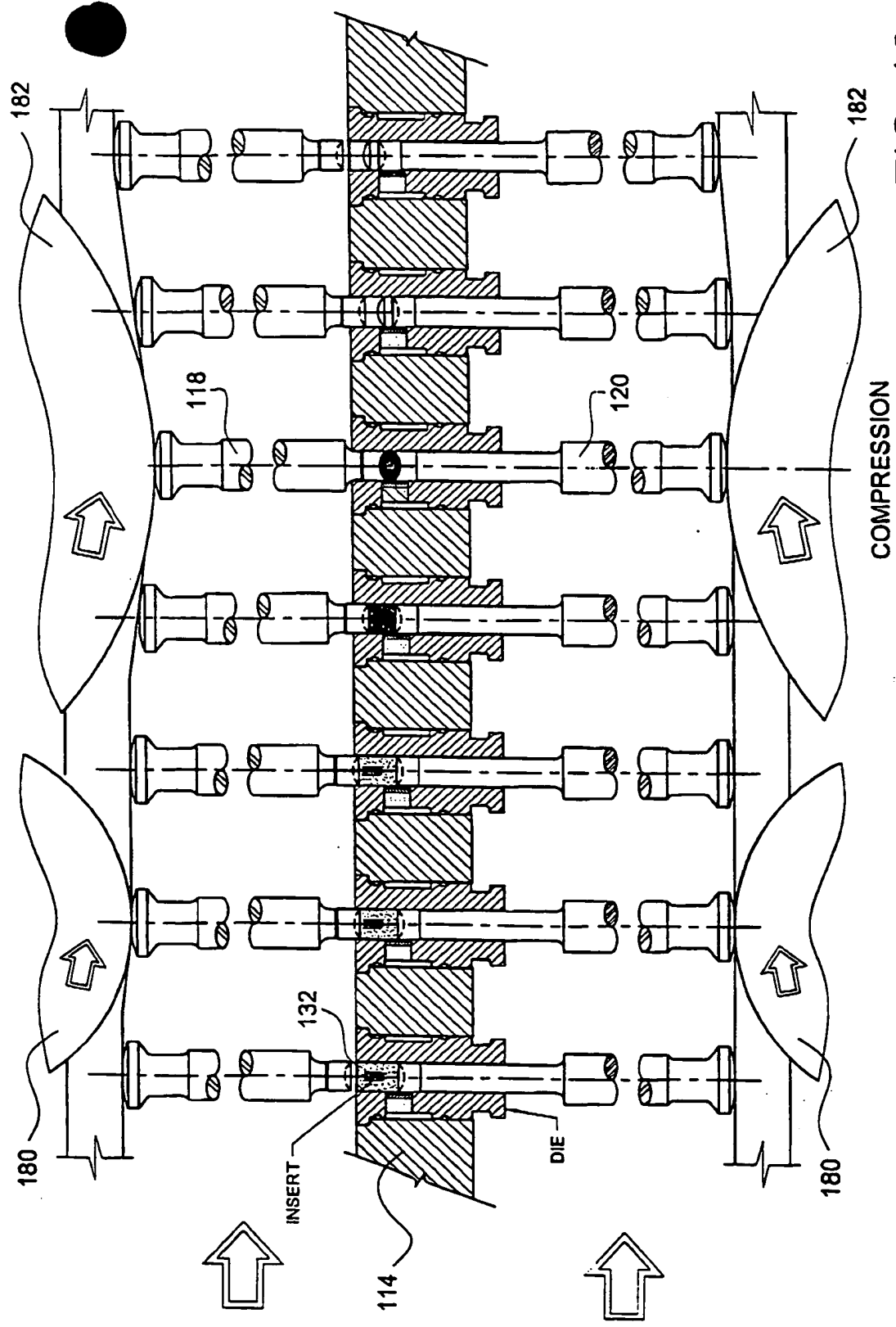
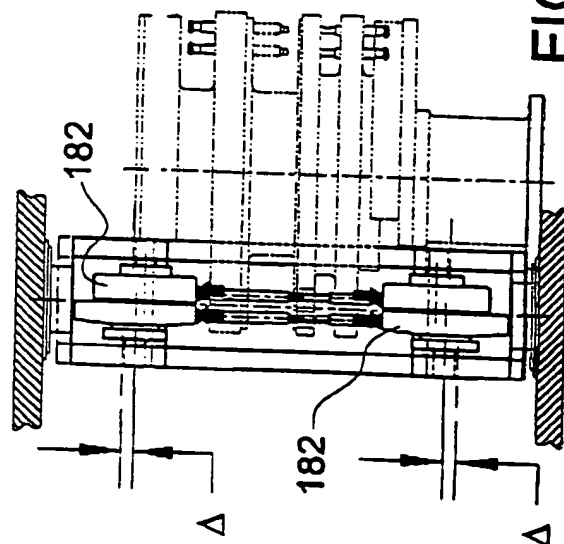
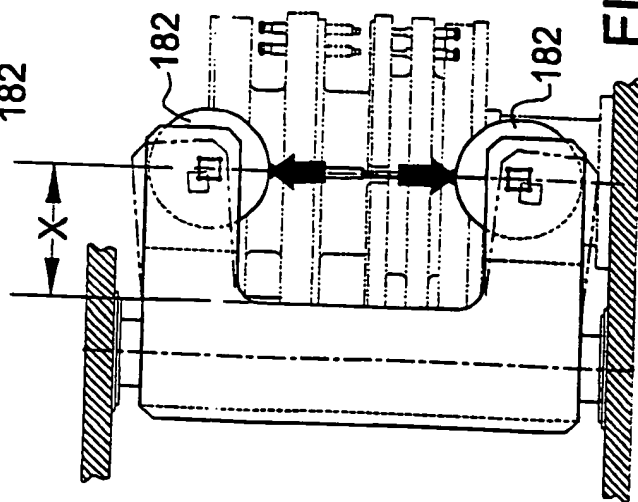
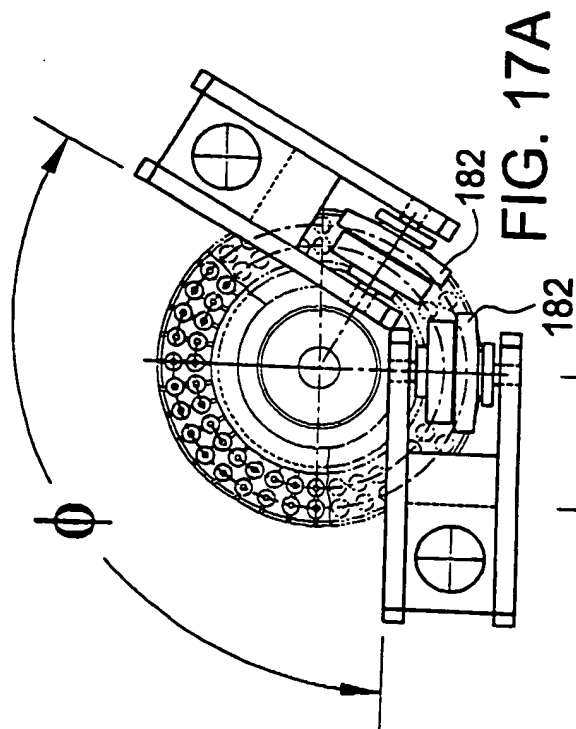


FIG. 16



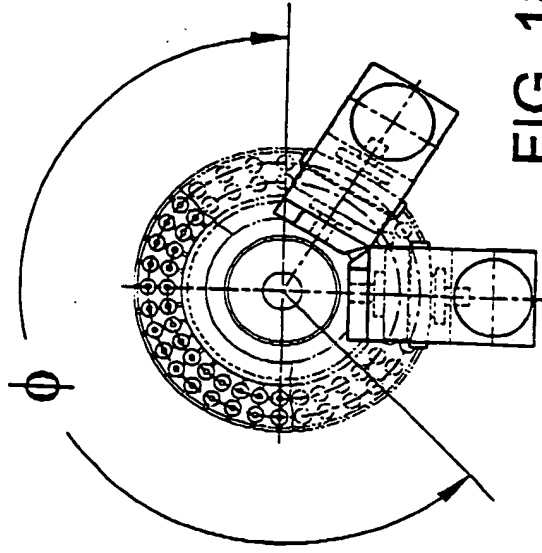


FIG. 18A

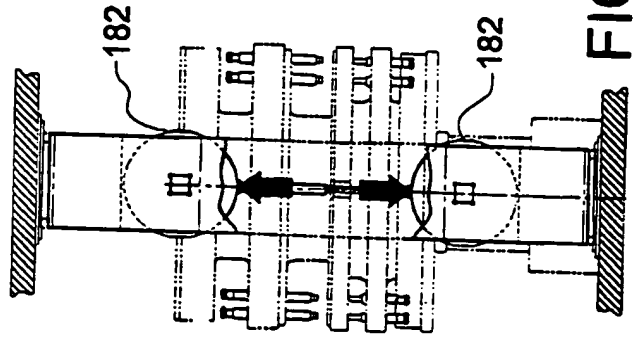


FIG. 18B

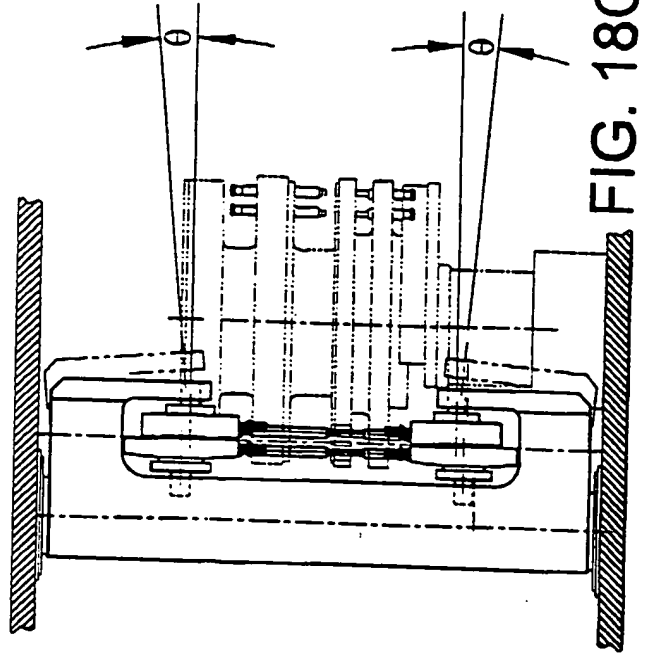


FIG. 18C

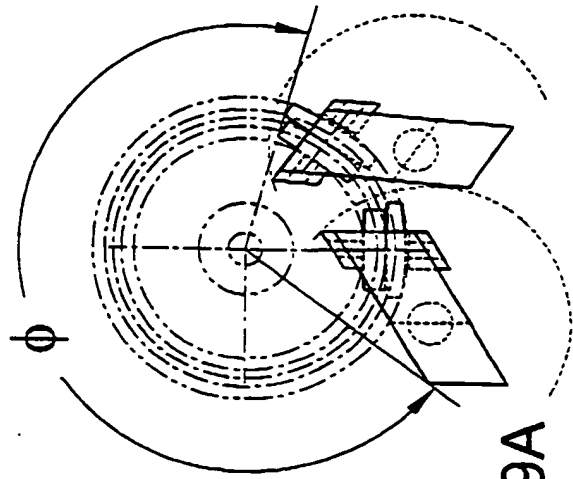


FIG. 19A

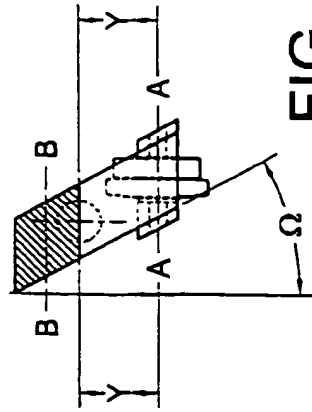


FIG. 19D

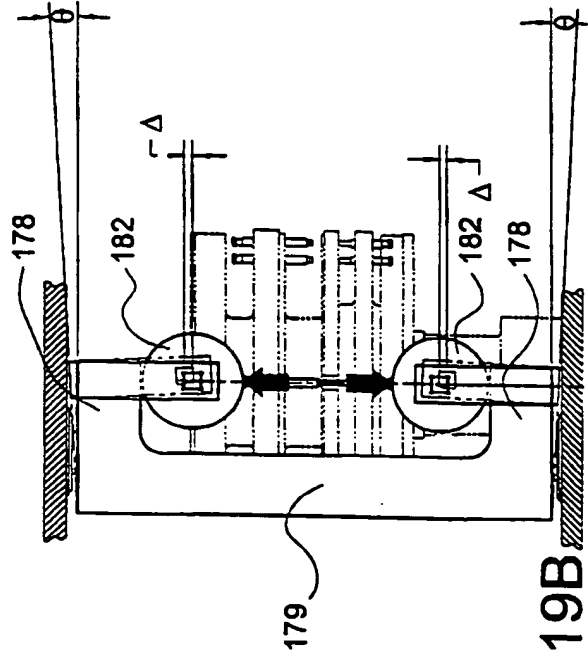


FIG. 19B

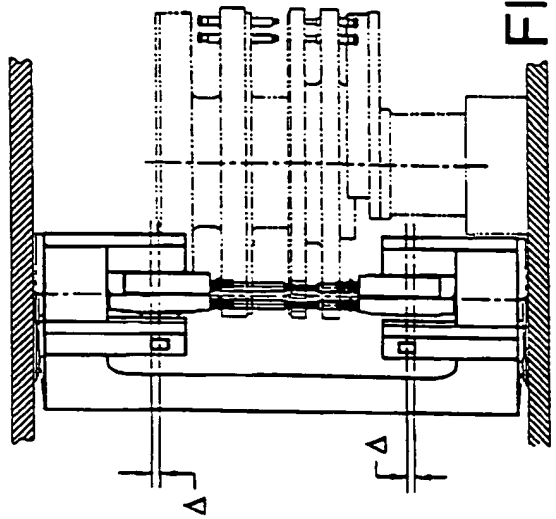


FIG. 19C

096639.0364

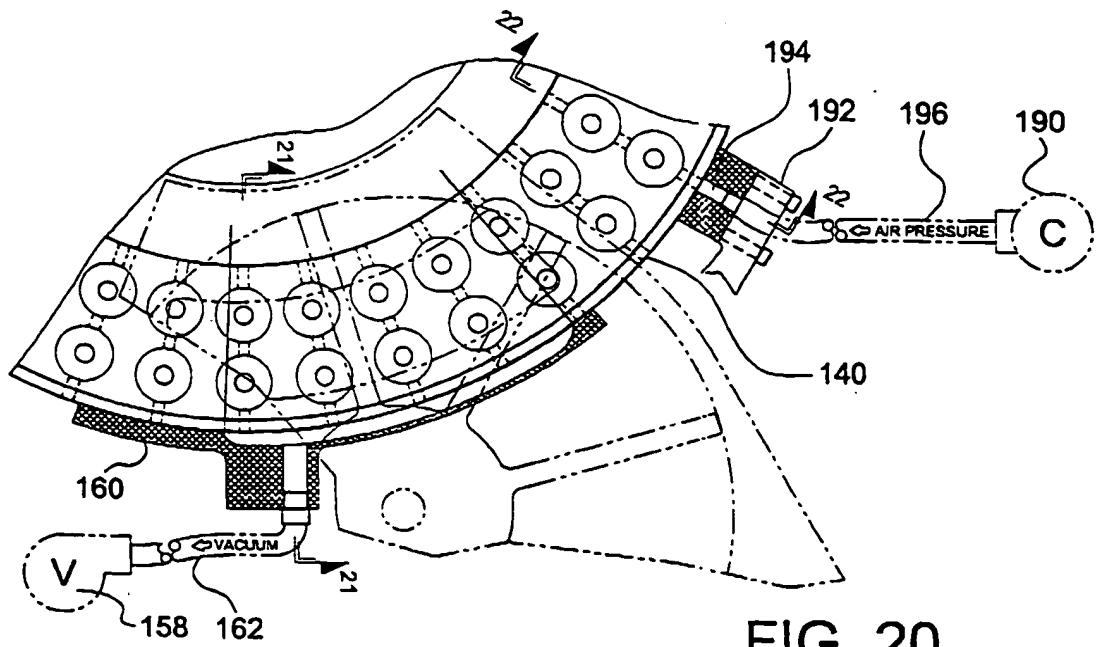


FIG. 20

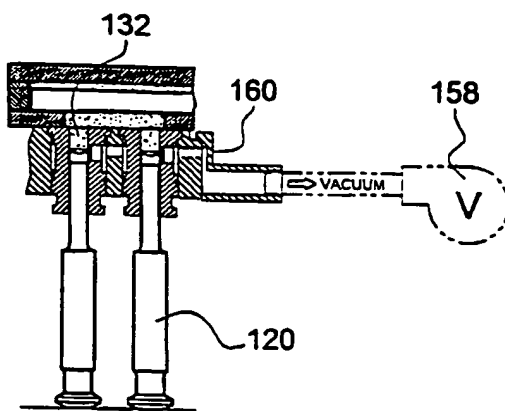


FIG. 21

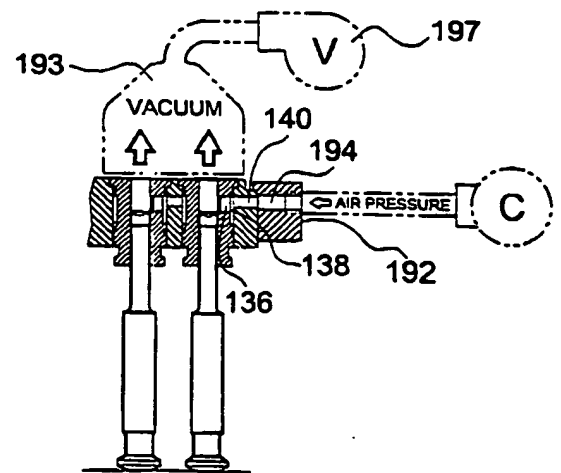
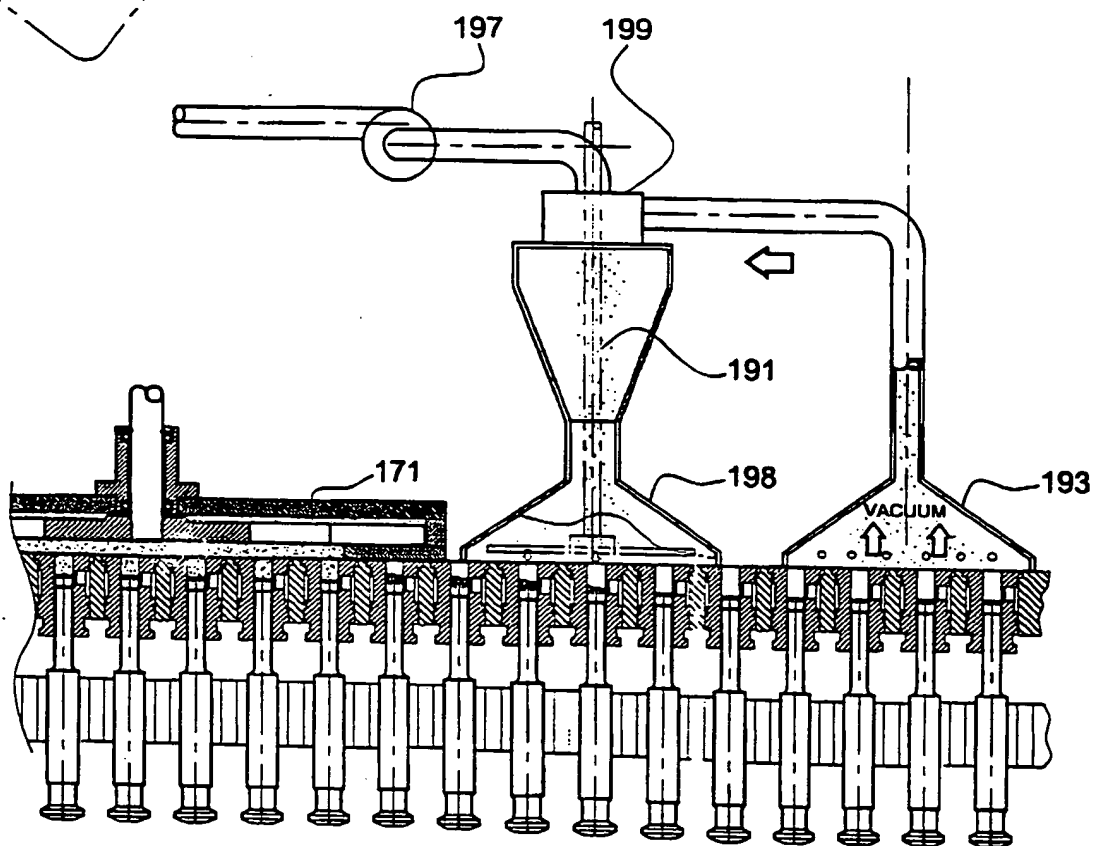
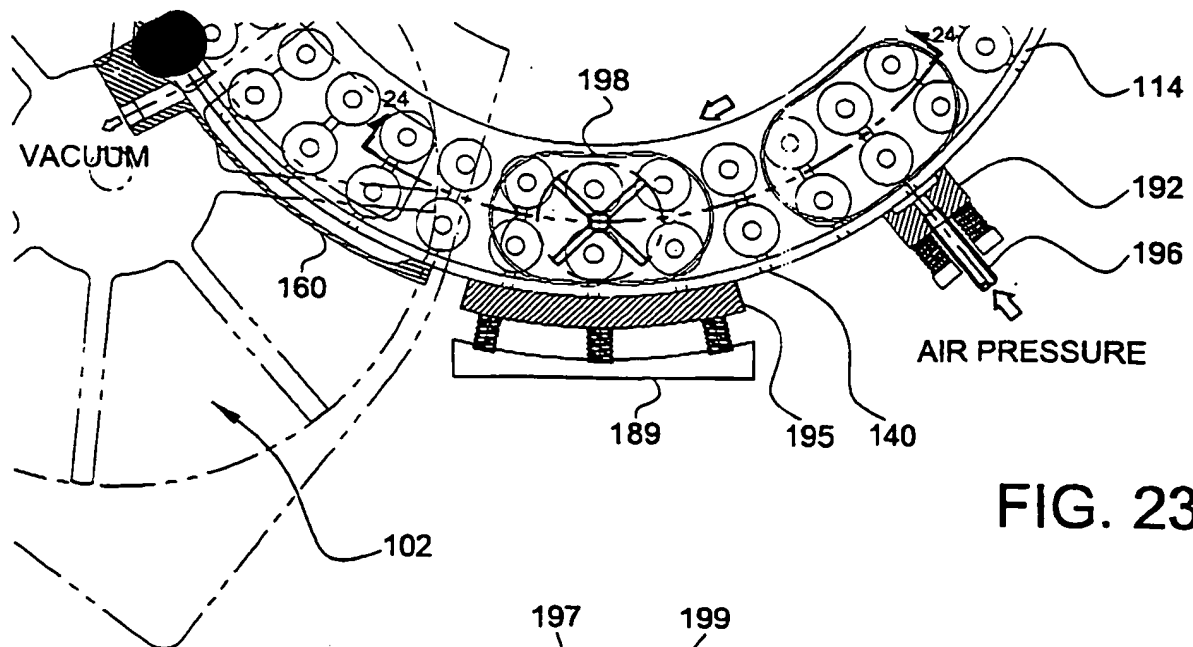


FIG. 22



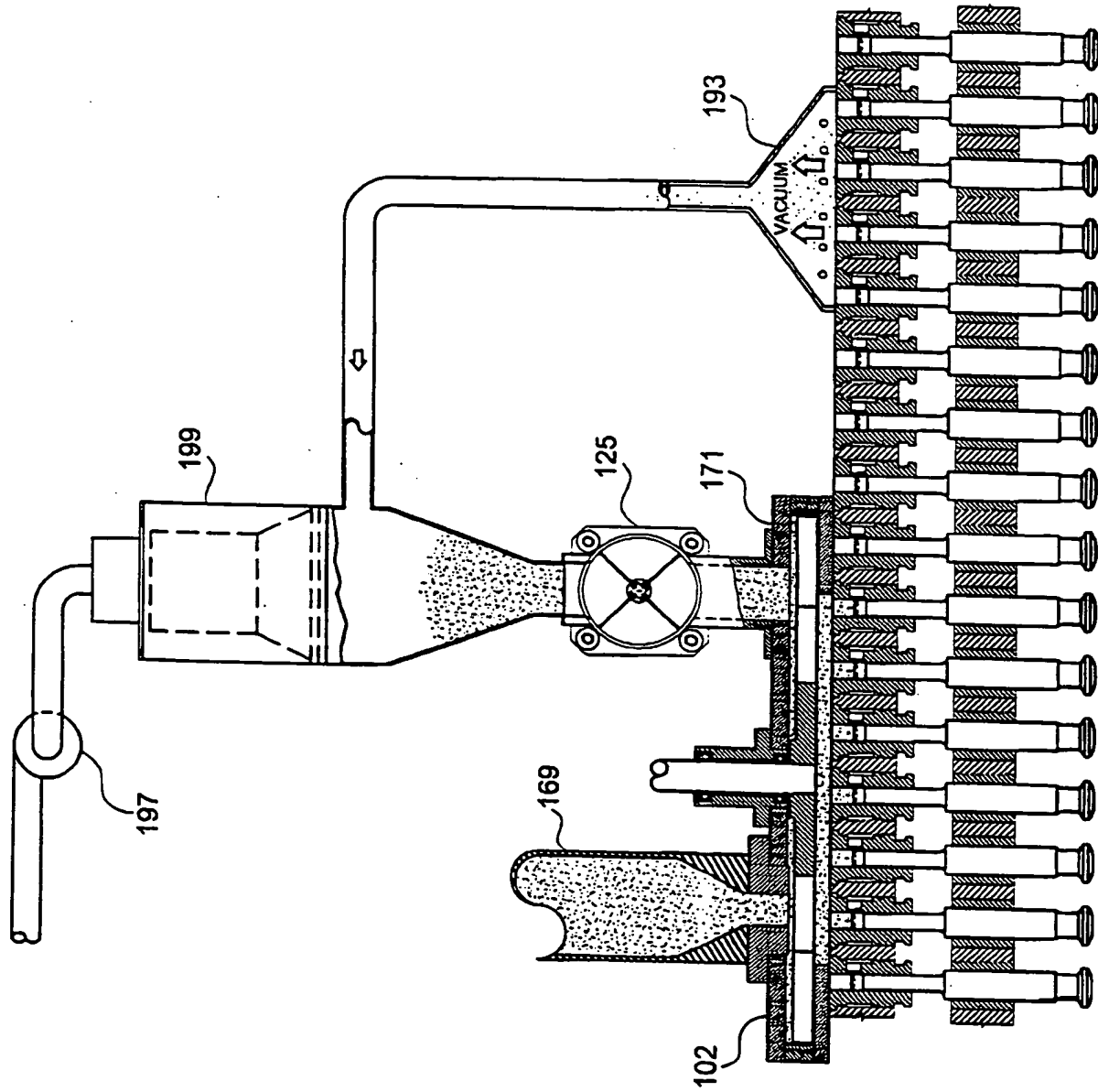


FIG. 25

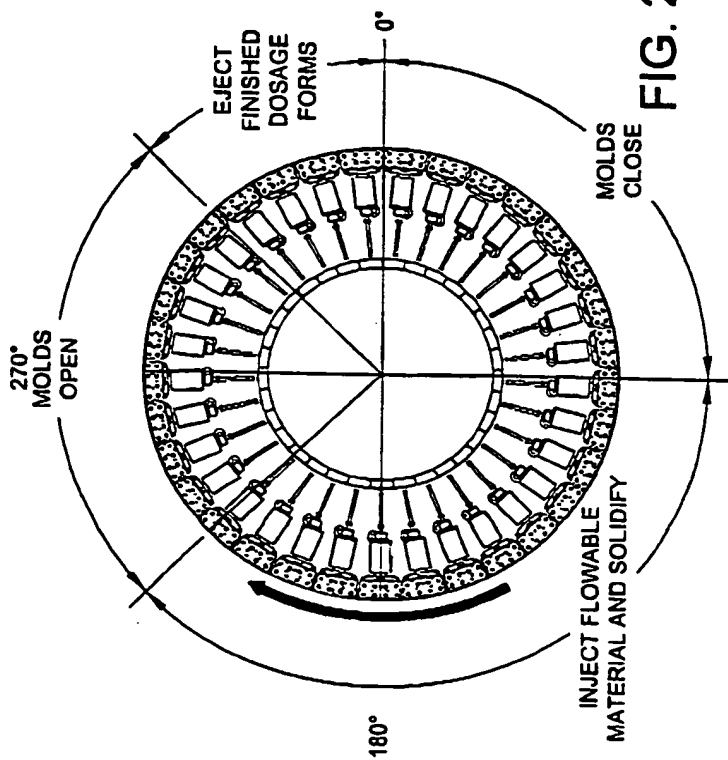


FIG. 26A

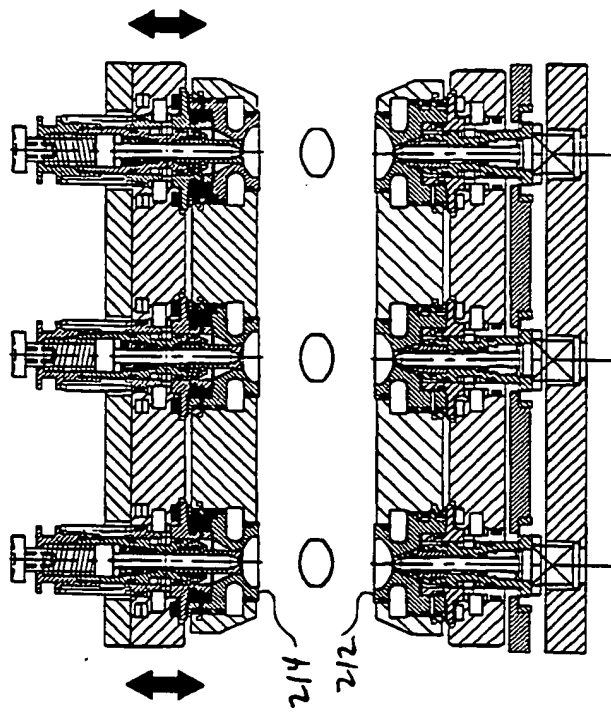


FIG. 26C

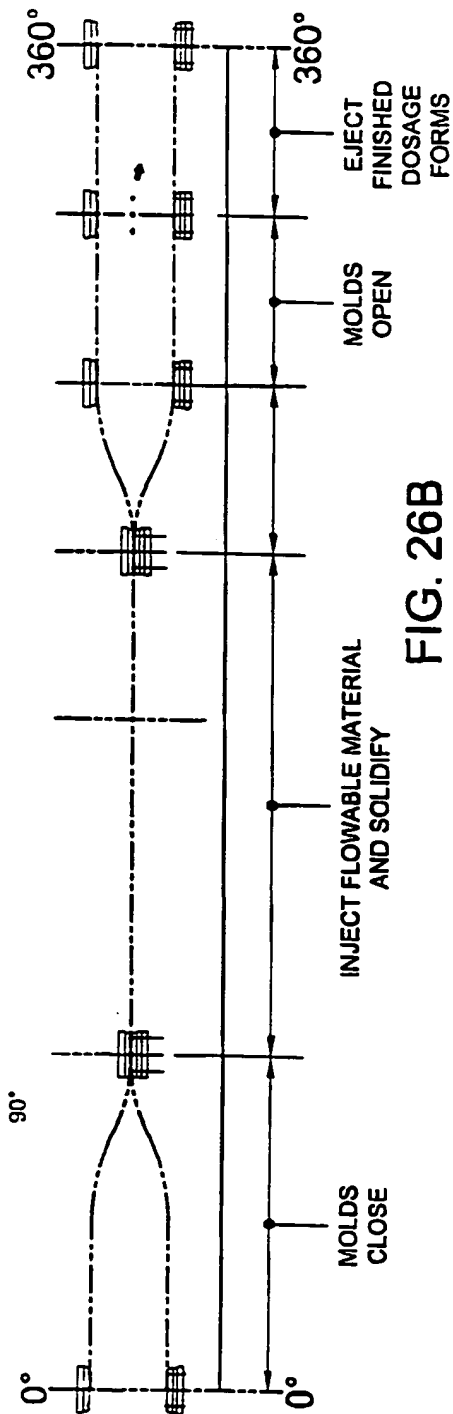
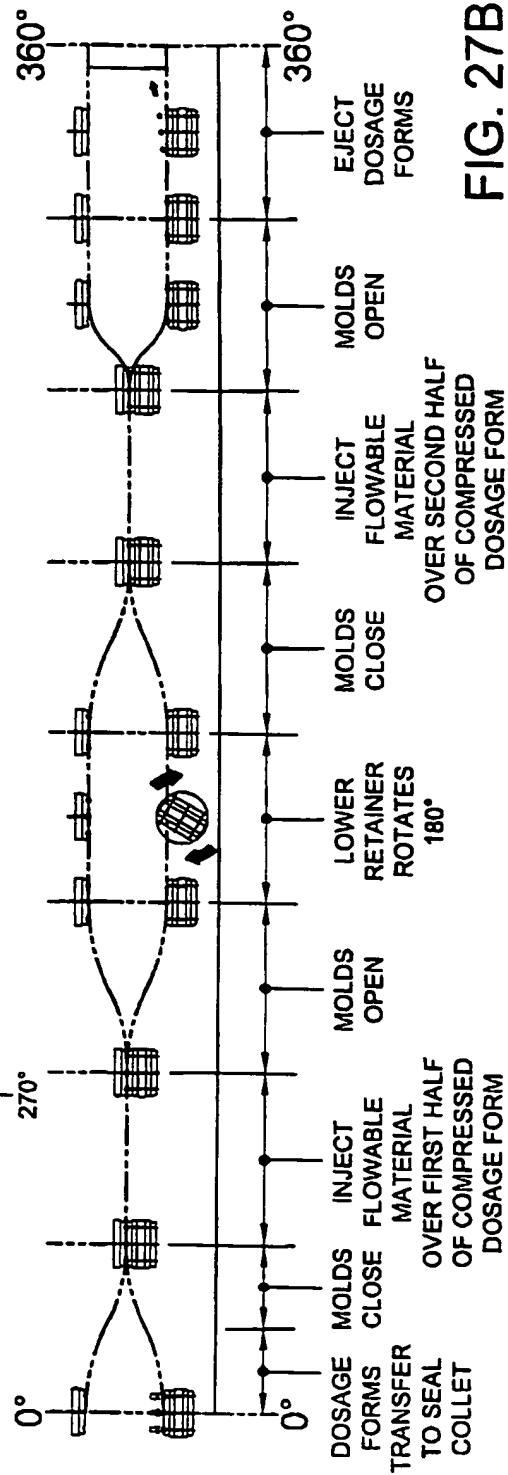
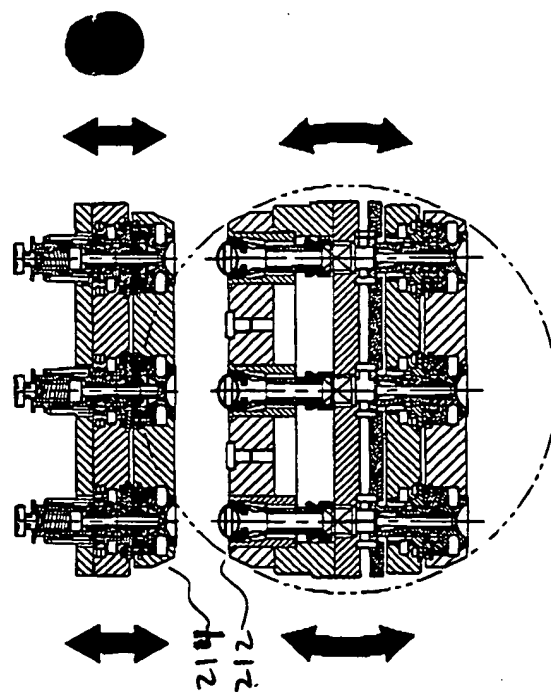
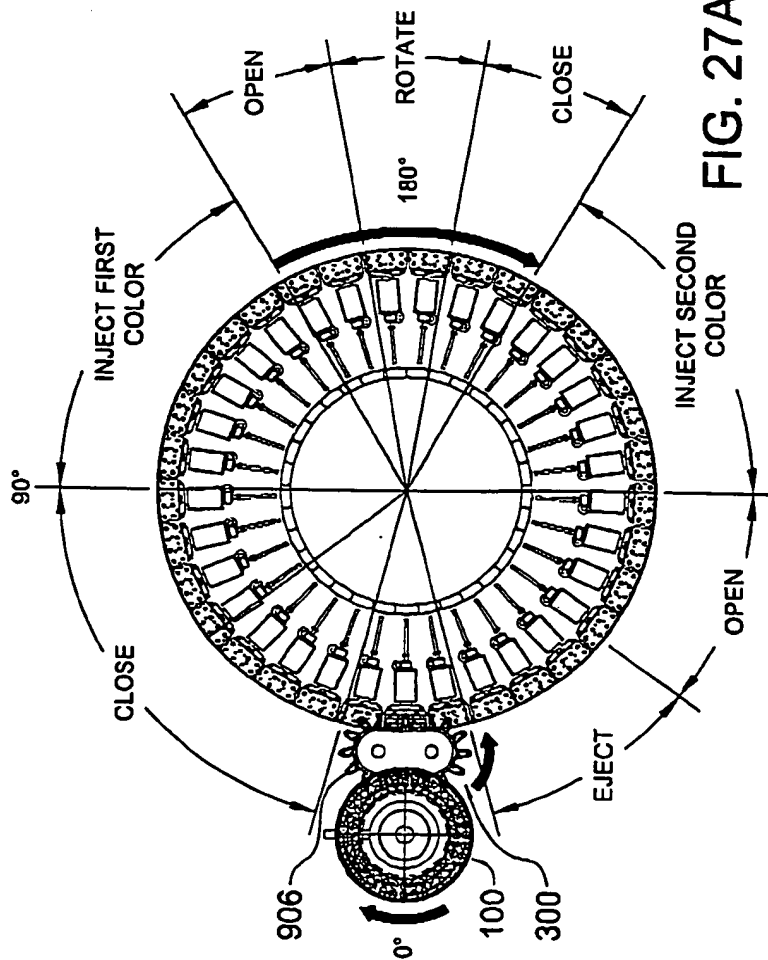


FIG. 26B



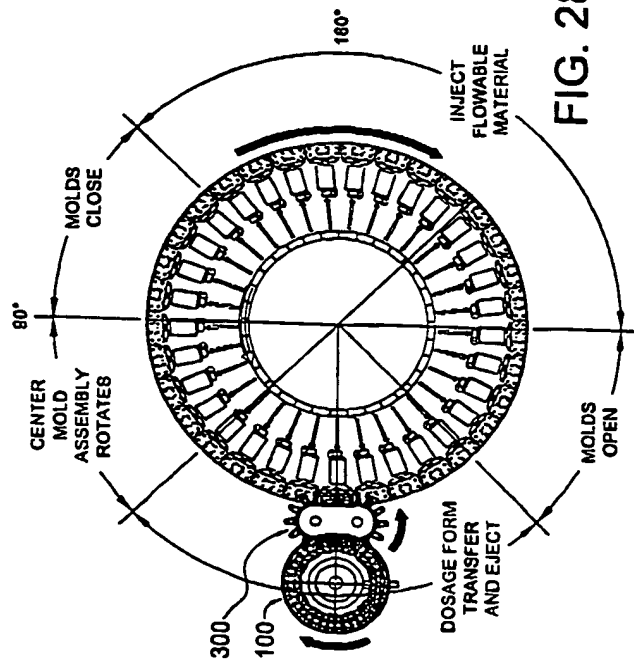


FIG. 28A

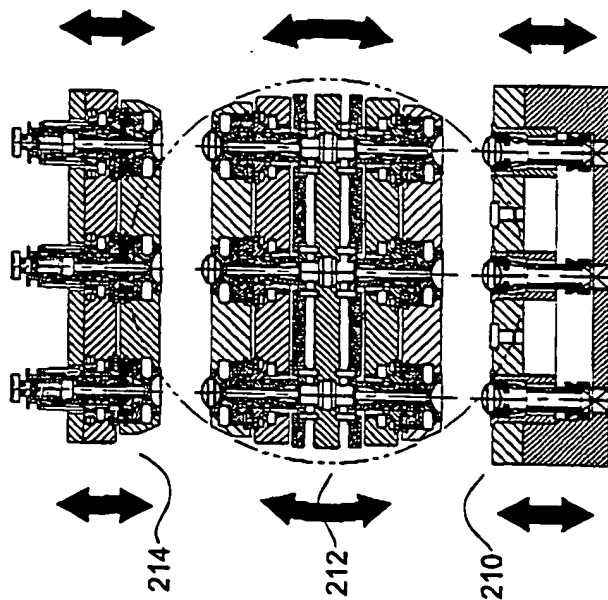


FIG. 28C (SECOND REVOLUTION)

(FIRST REVOLUTION)

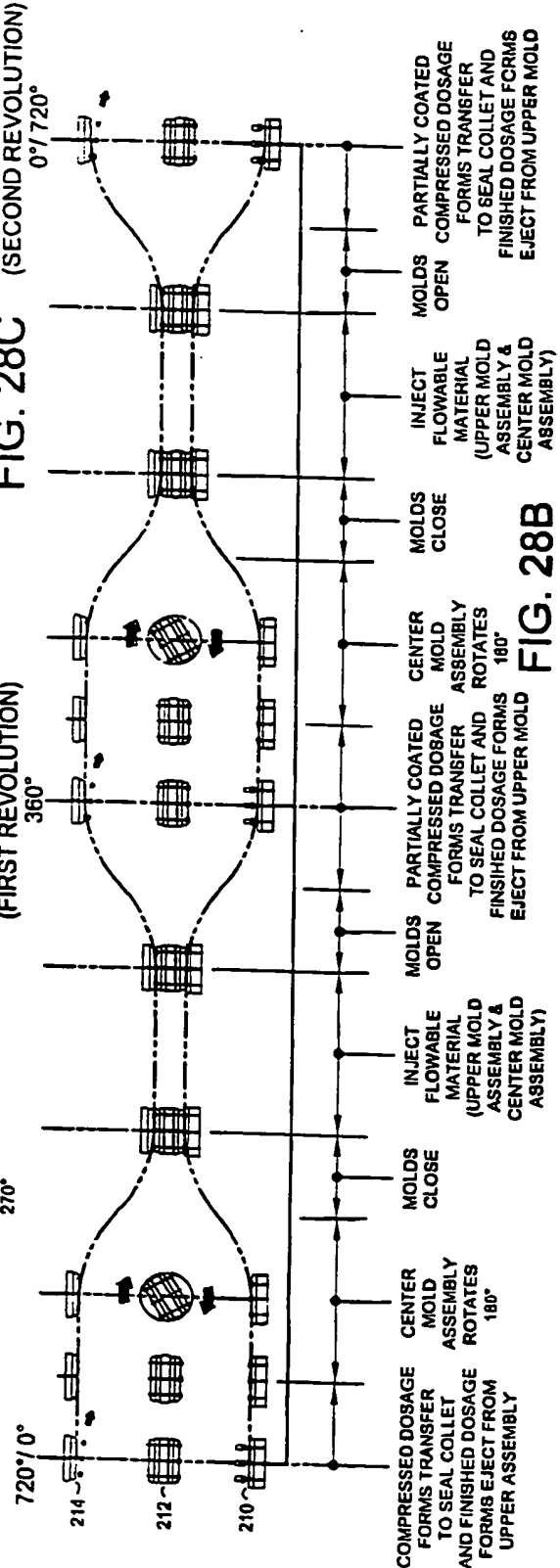


FIG. 28B

FIG. 29

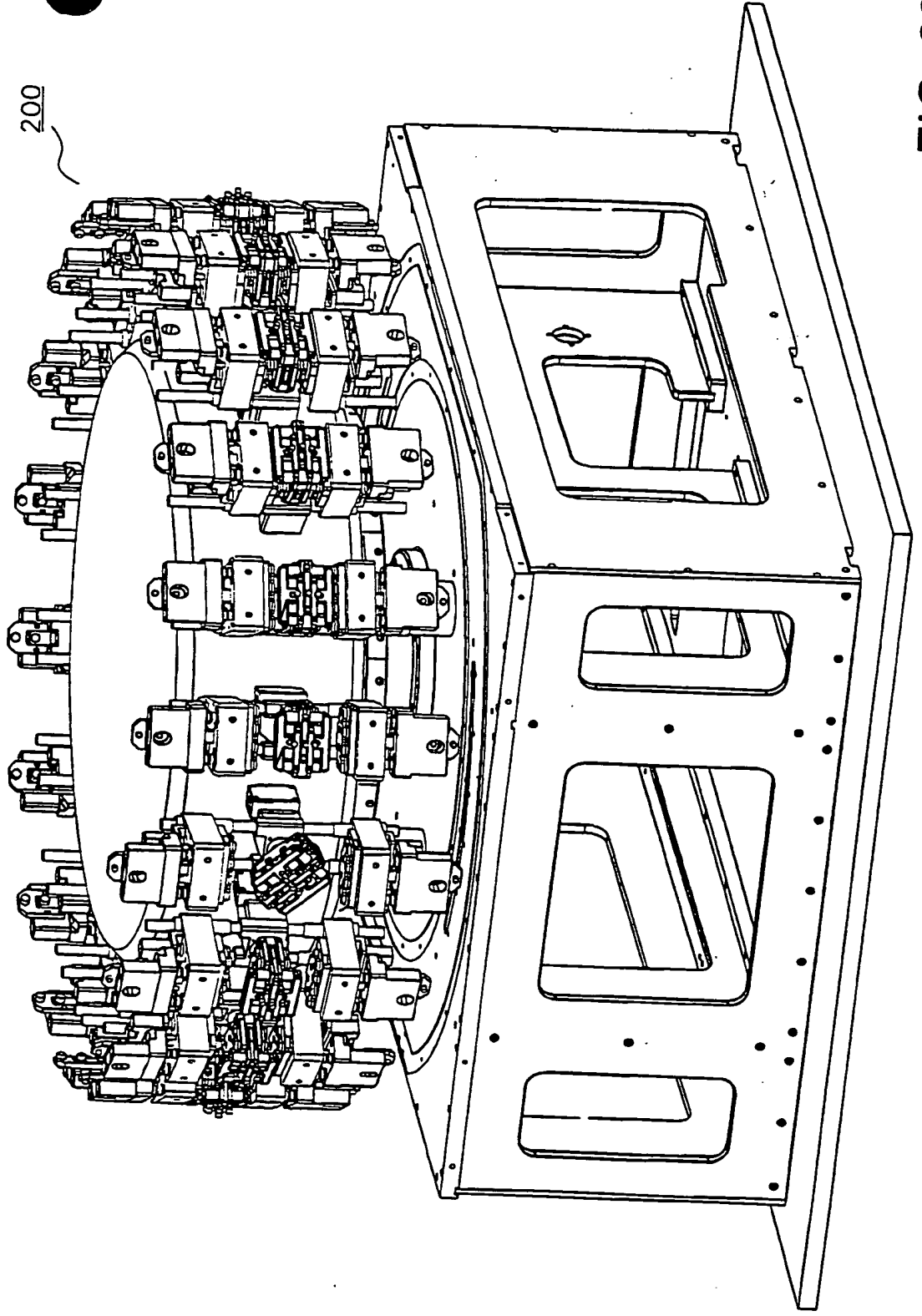


FIG. 29

FIG. 30

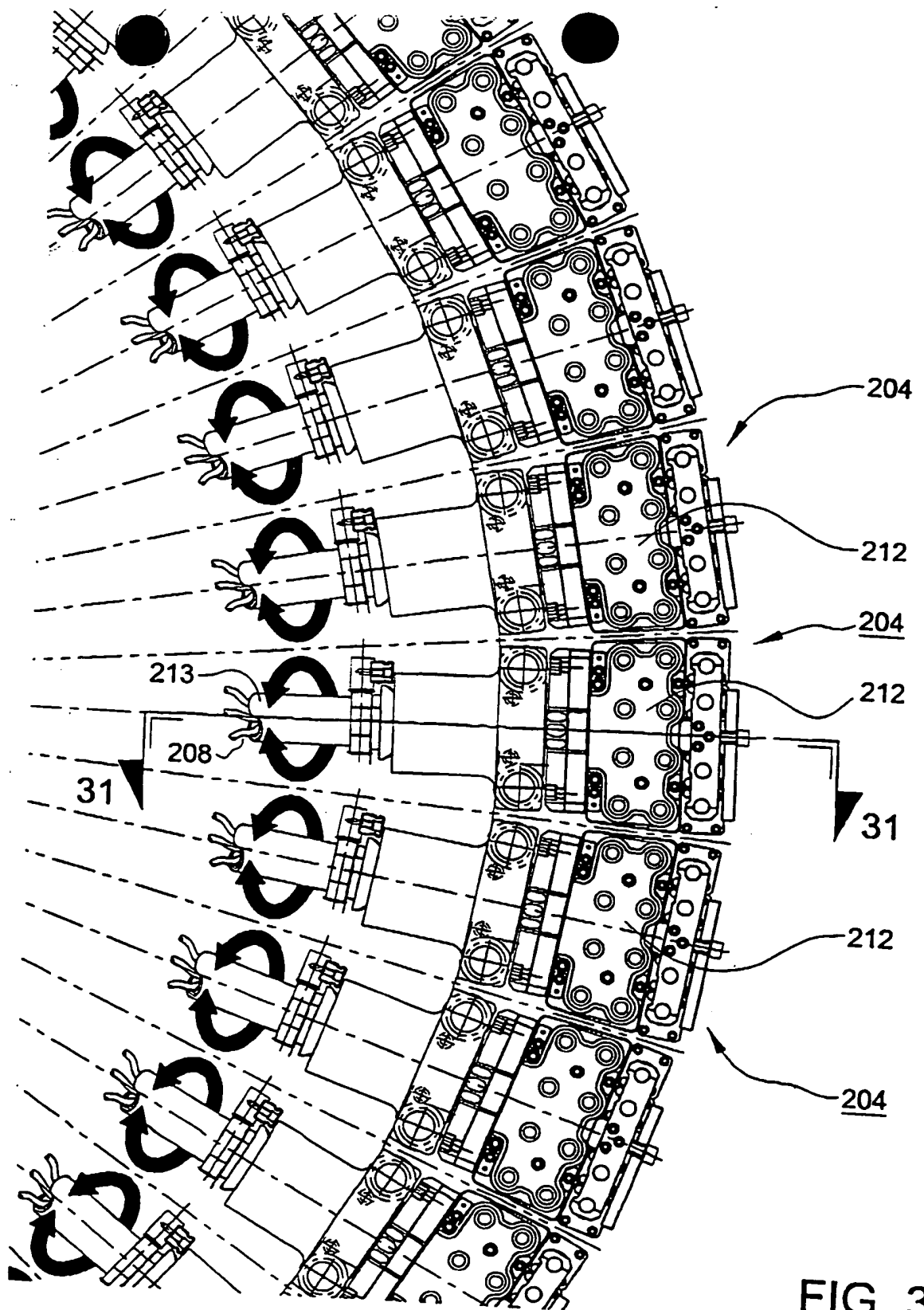


FIG. 30

FIG. 31

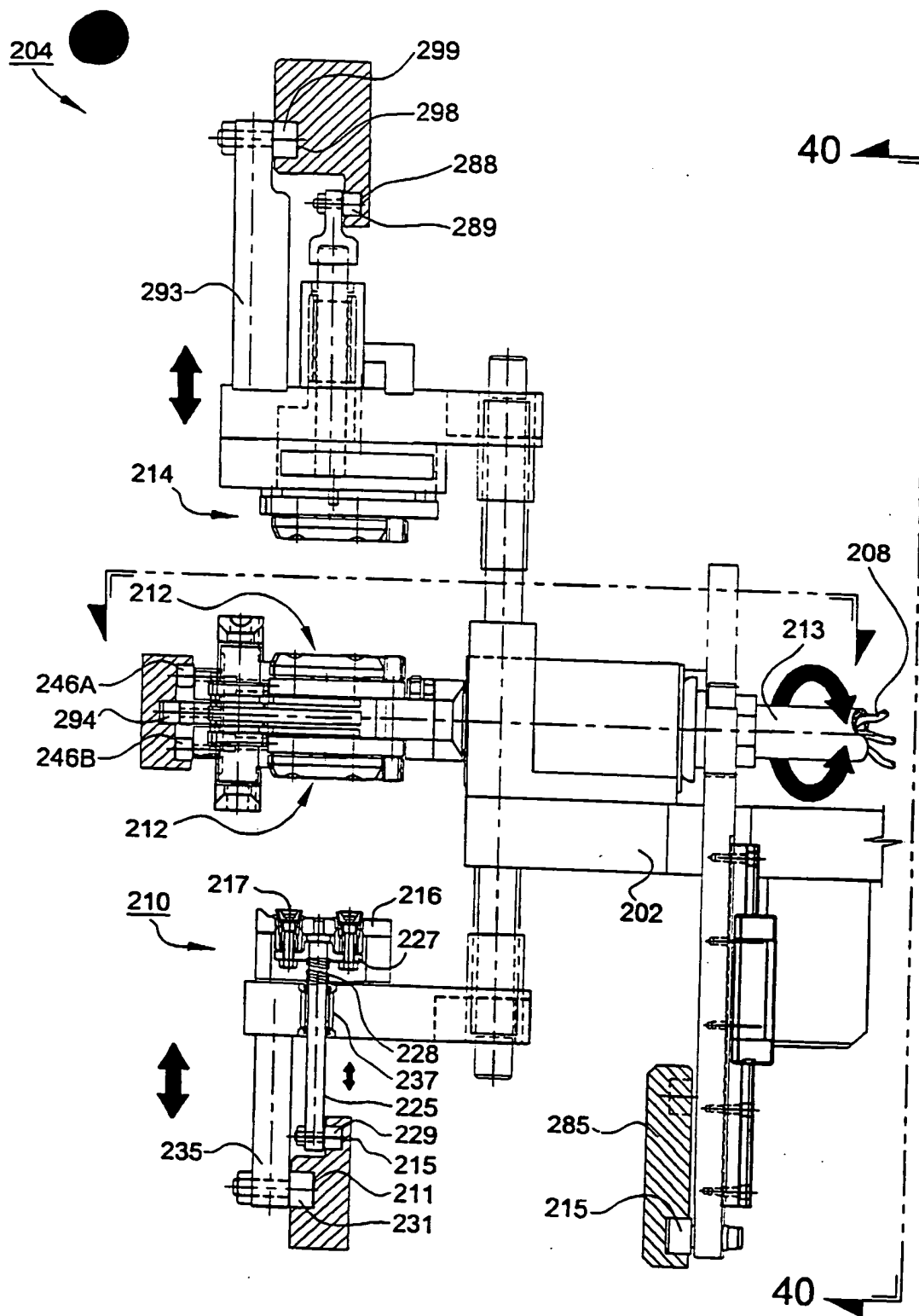


FIG. 31

4,032,600 " 62699660

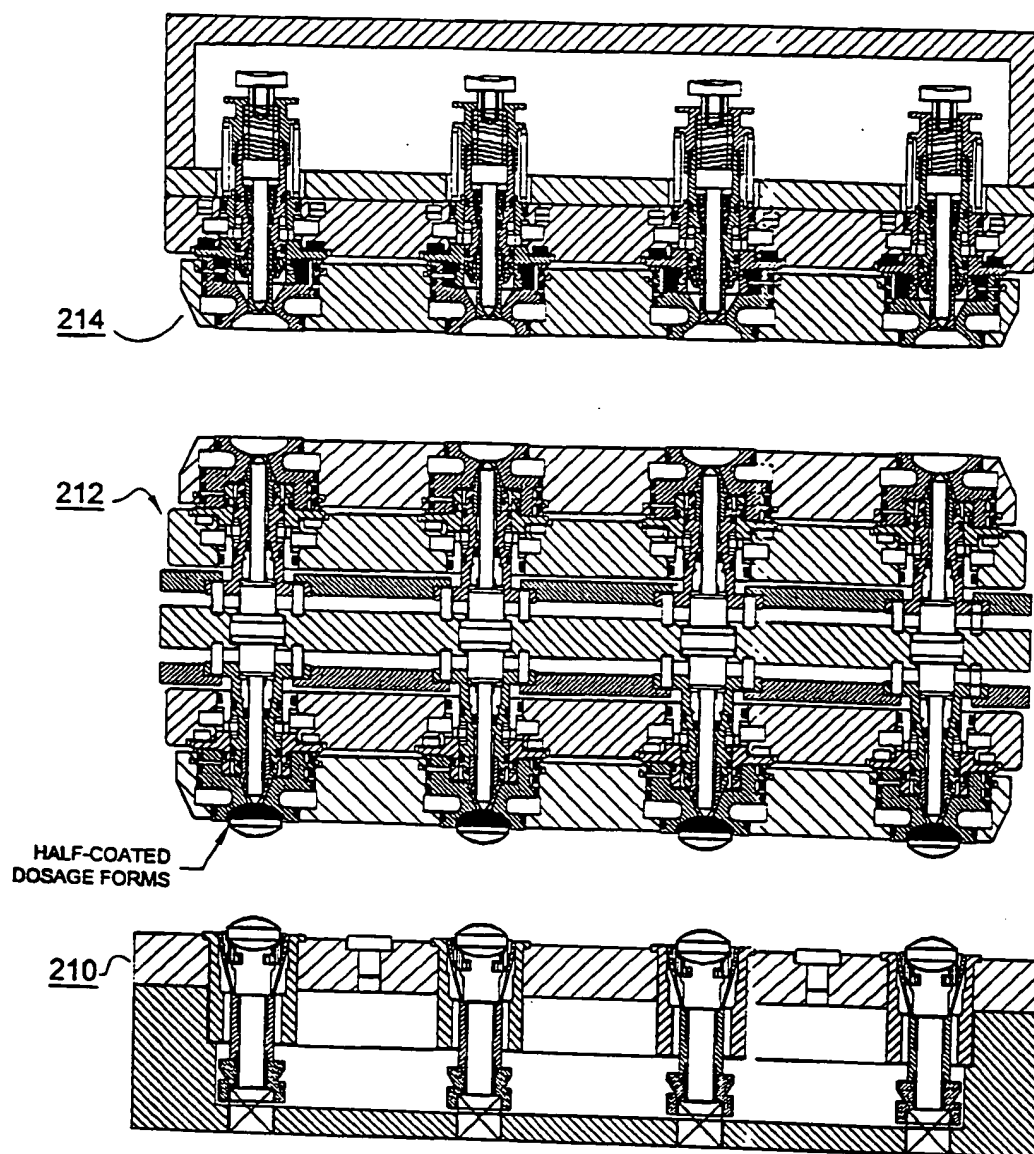


FIG. 32

FIG. 33

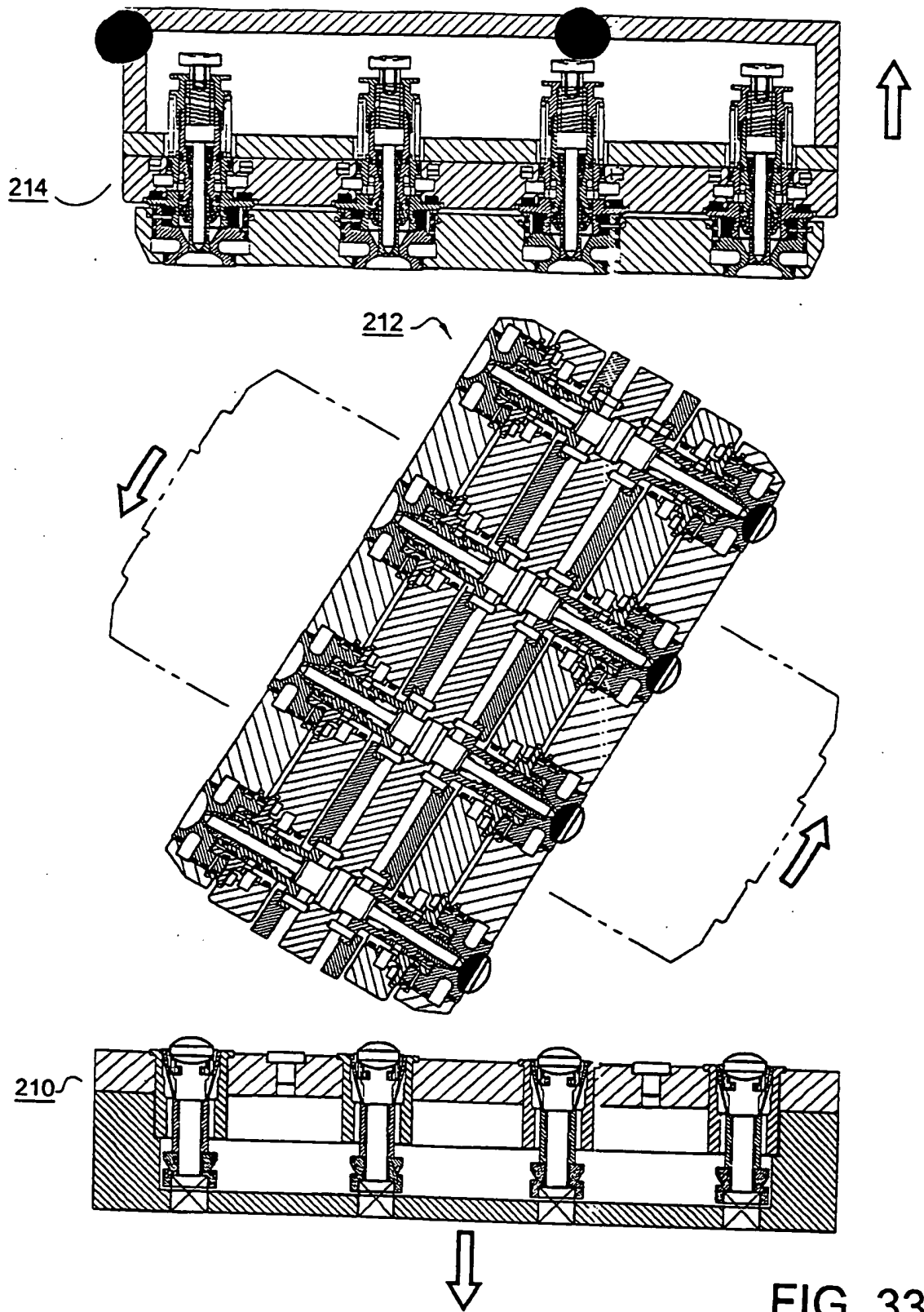


FIG. 33

FIG. 34

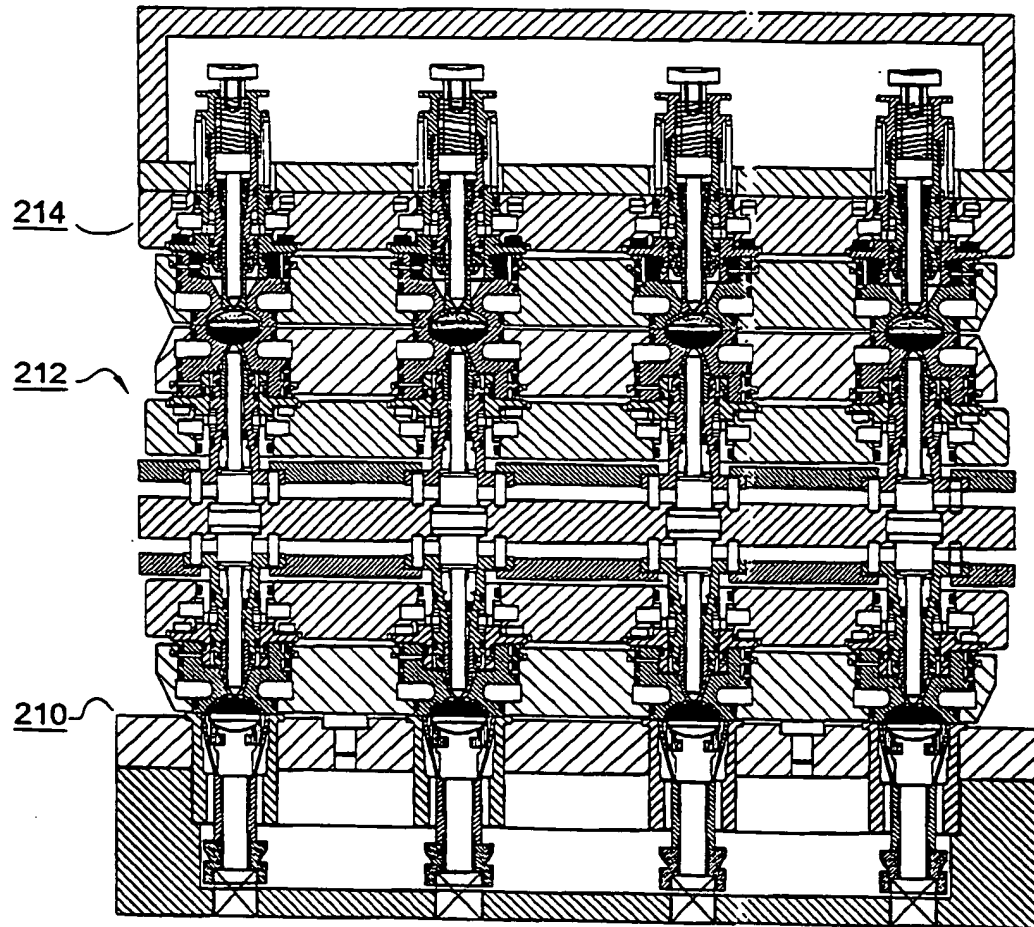


FIG. 34

Figure 1 illustrates a multi-layered substrate assembly in three cross-sectional views, labeled 210, 212, and 214, showing different stages of a manufacturing process. The assembly consists of a substrate with multiple layers and four vertical pillars. The top layer is a conductive material, and the bottom layer is a different material. The pillars are formed by a series of steps, including deposition, etching, and deposition of a protective layer. The sequence of the process is indicated by arrows pointing from 214 to 212 to 210.

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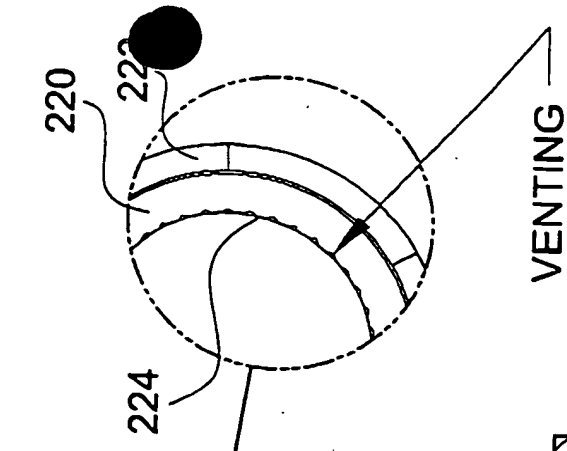


FIG. 38

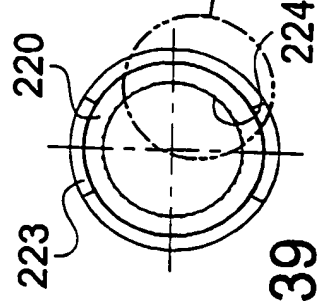


FIG. 39

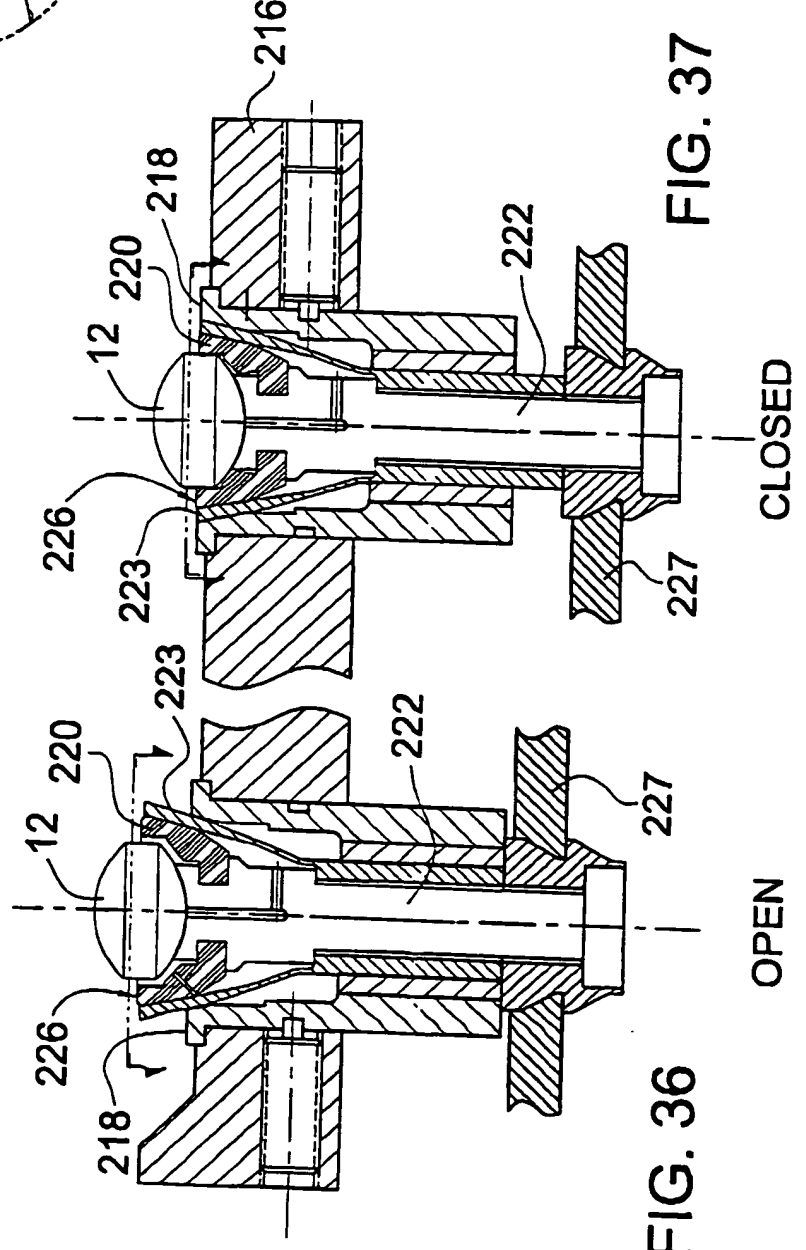


FIG. 36

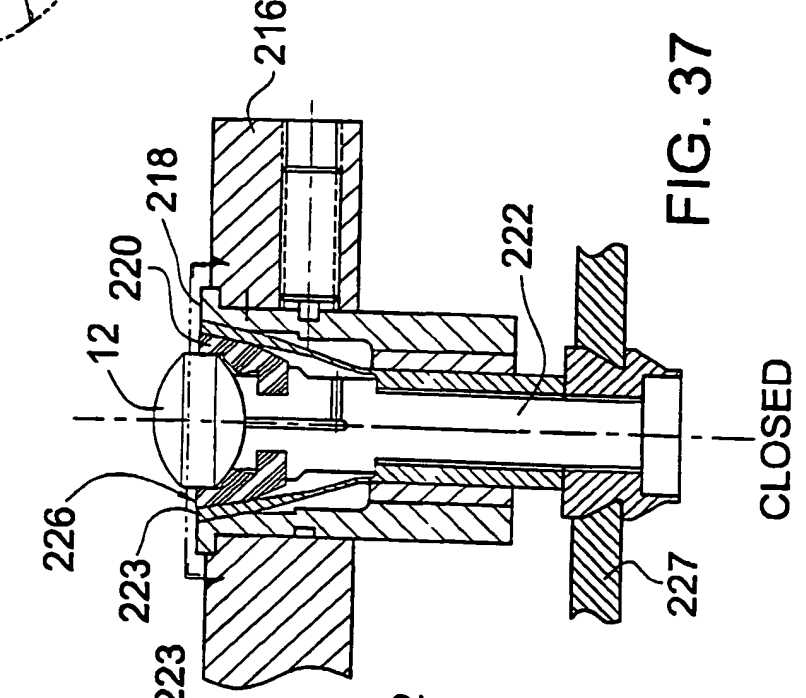


FIG. 37

VENTING

CLOSED

OPEN

FIG. 40

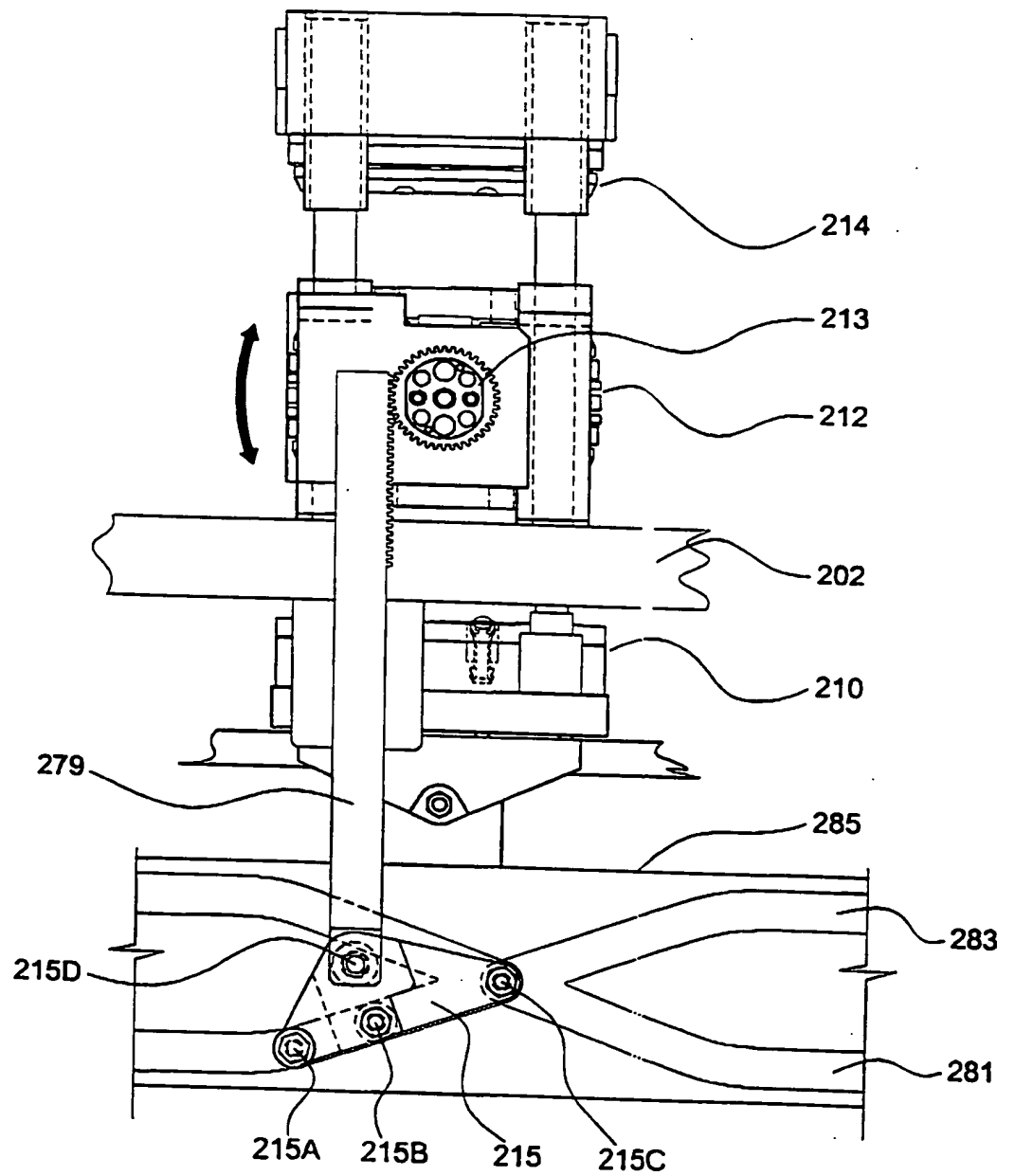


FIG. 40

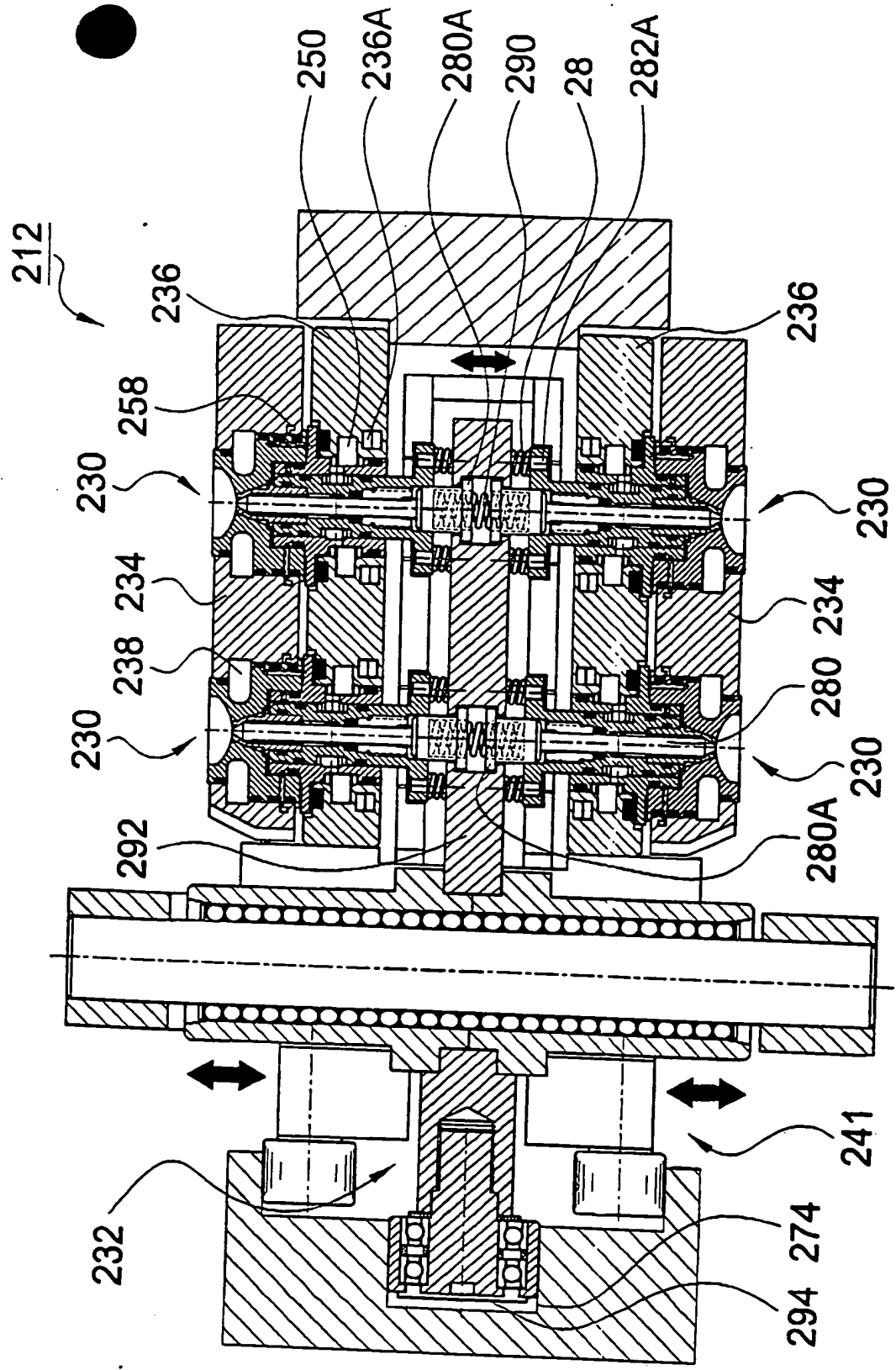


FIG. 41

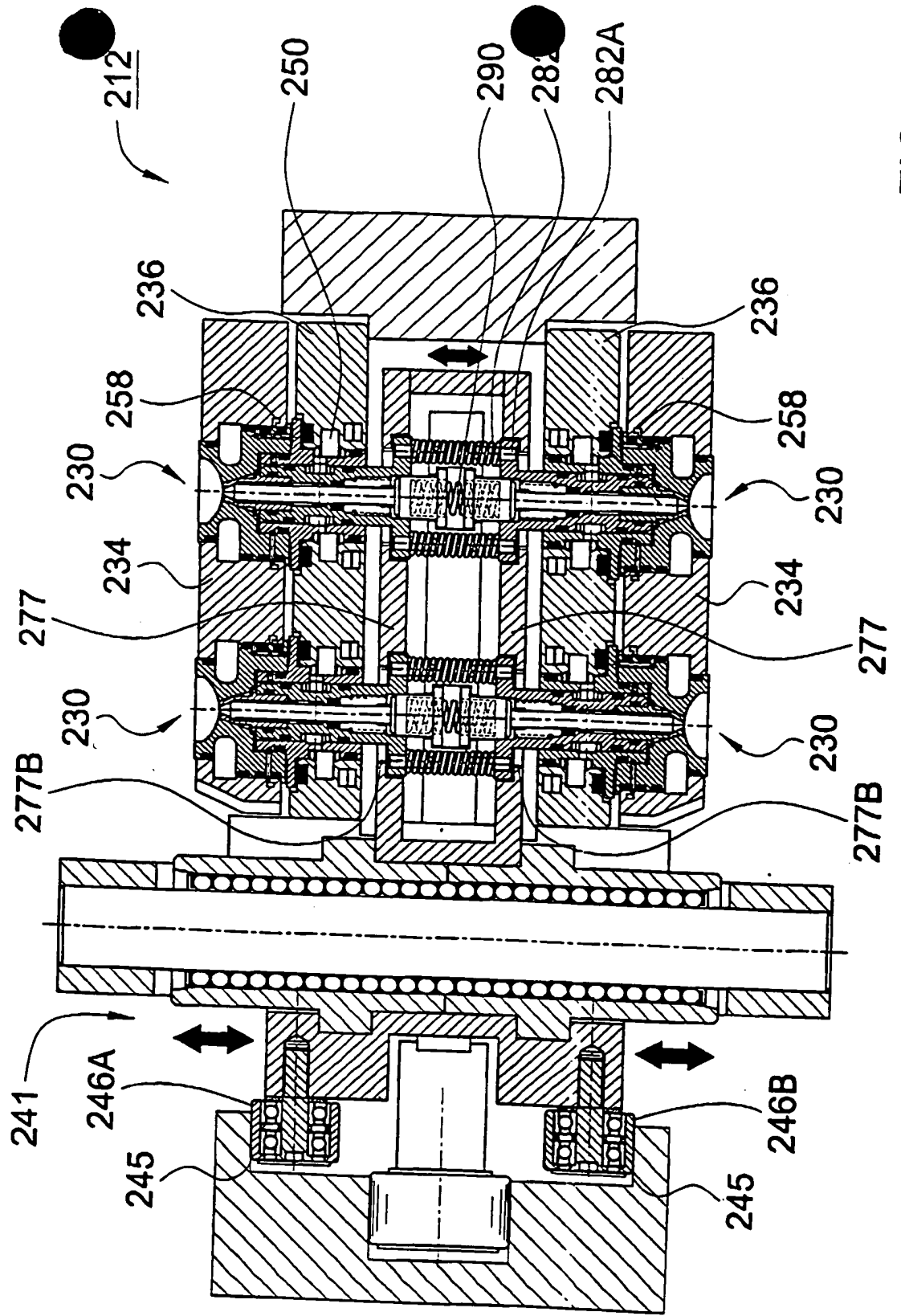


FIG. 42

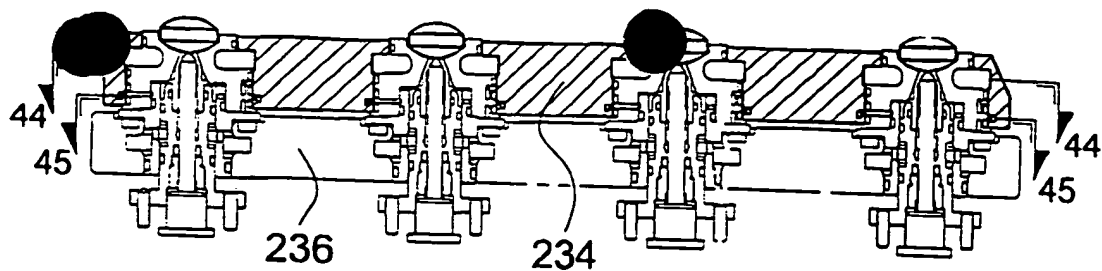


FIG. 43

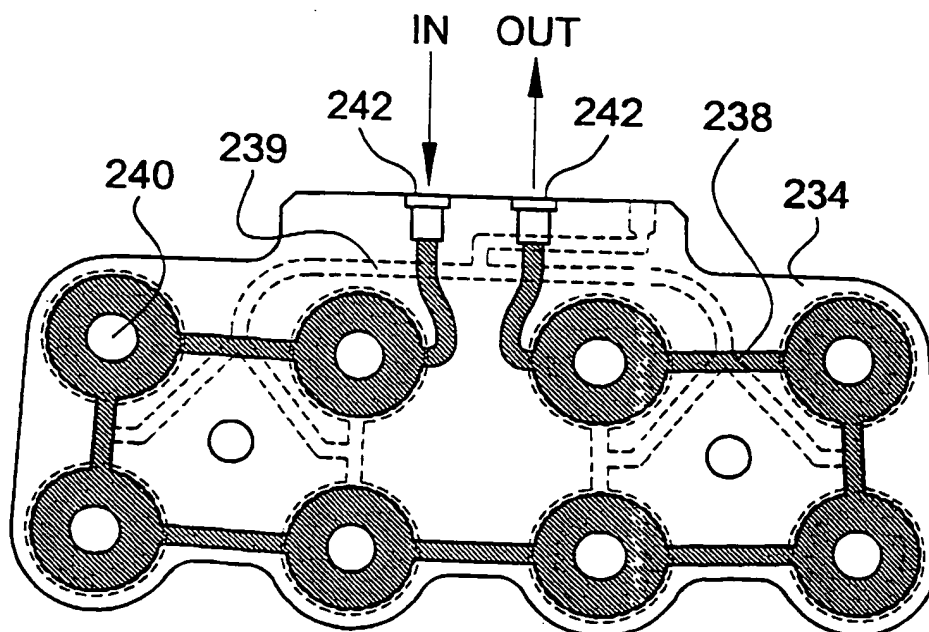


FIG. 44

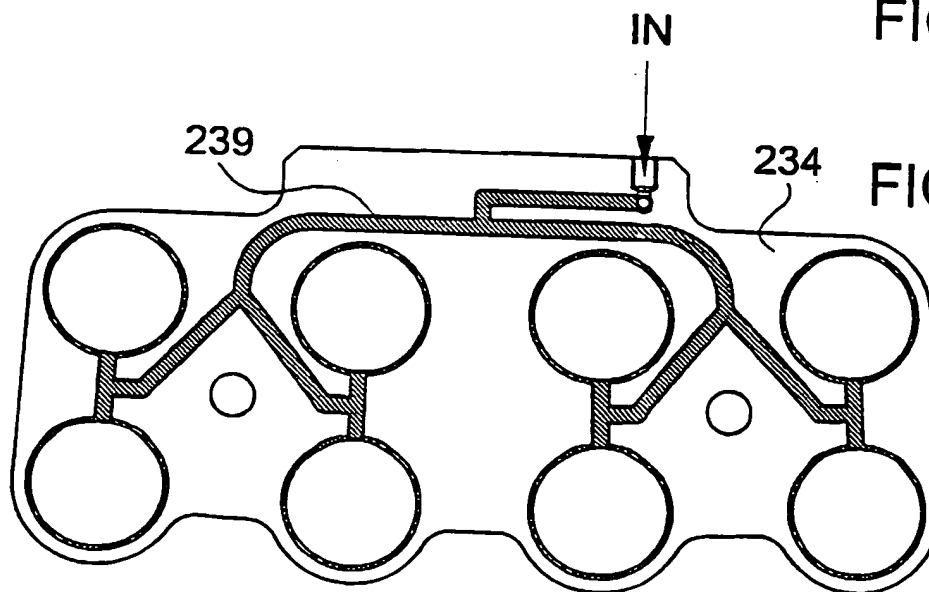


FIG. 45

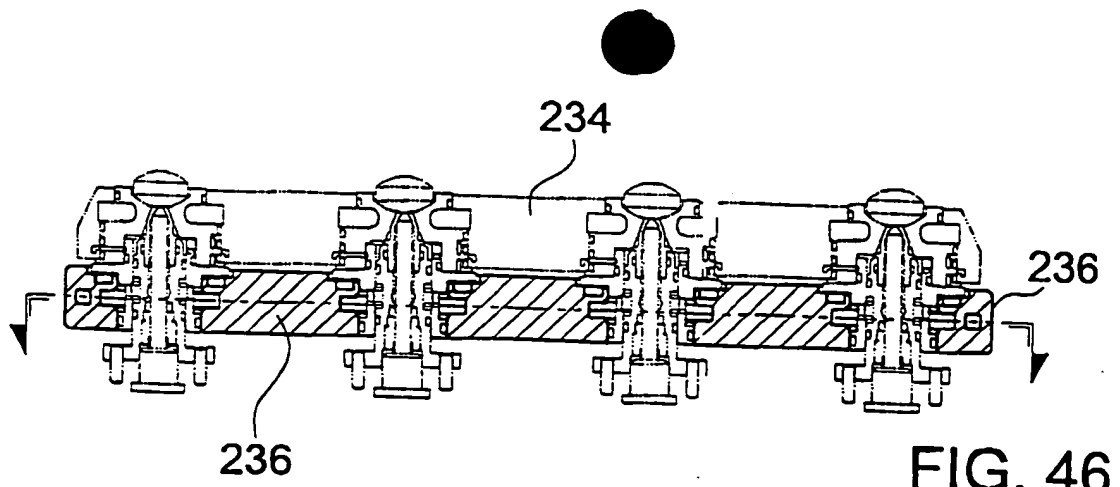


FIG. 46

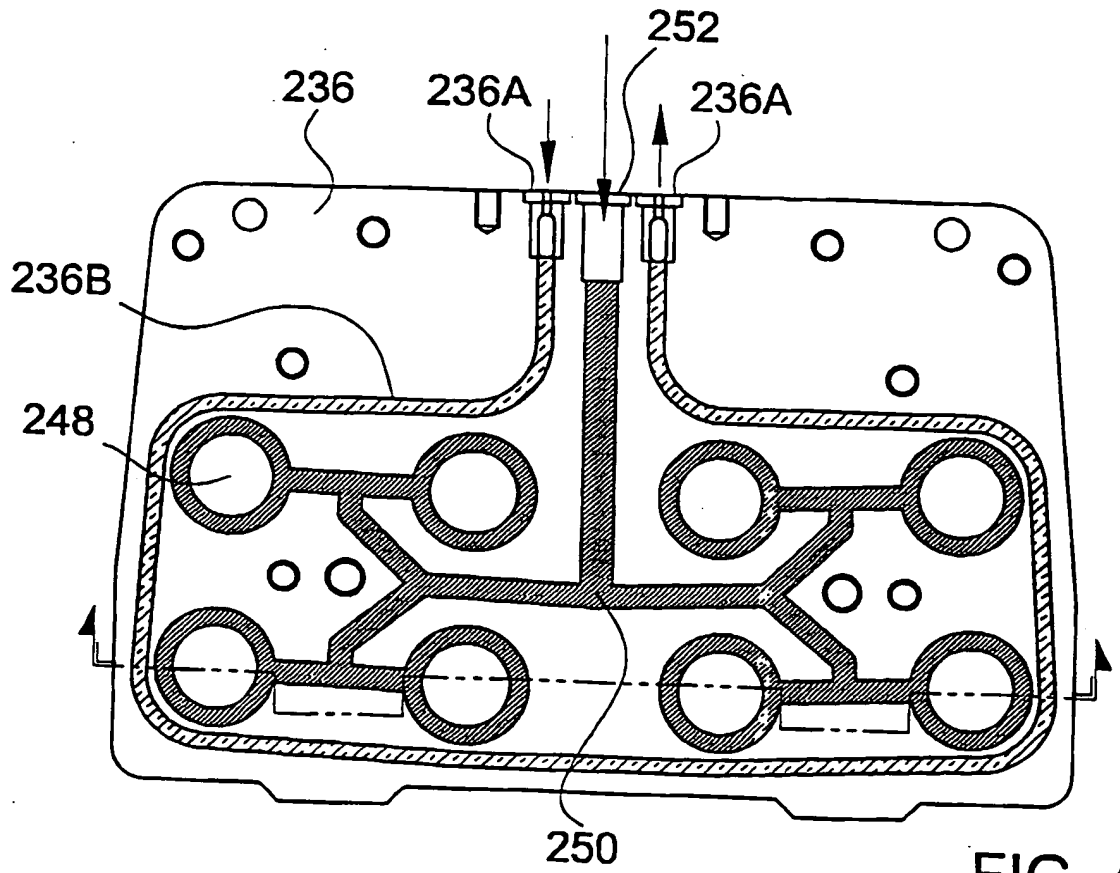
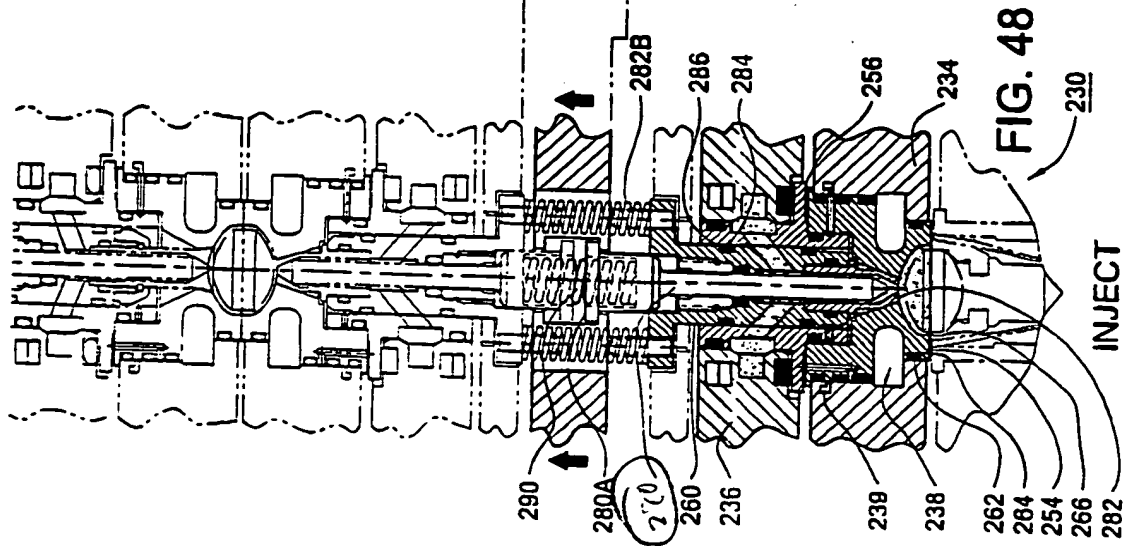
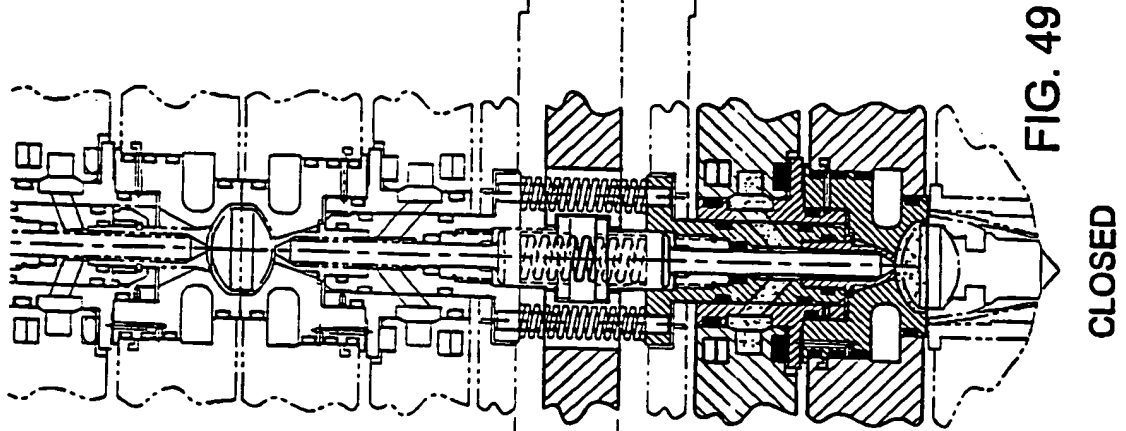


FIG. 47



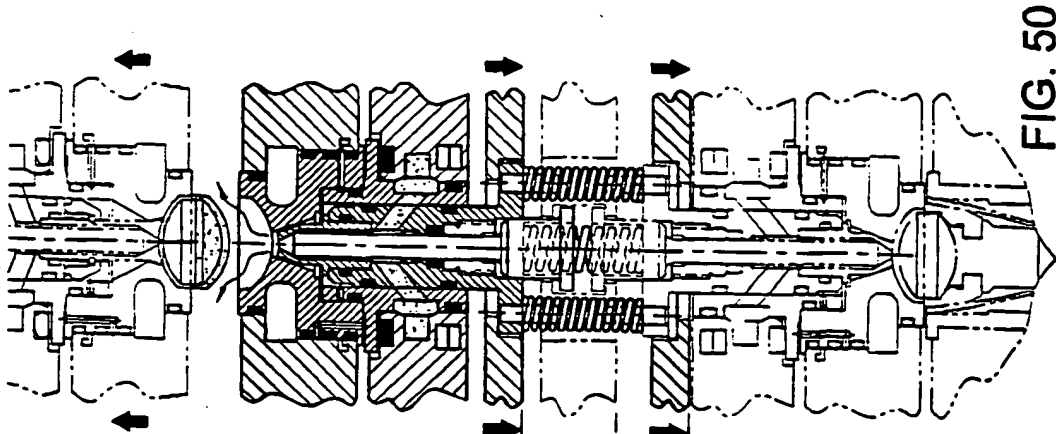
INJECT

FIG. 48



CLOSED

FIG. 49



TRANSFER

FIG. 50

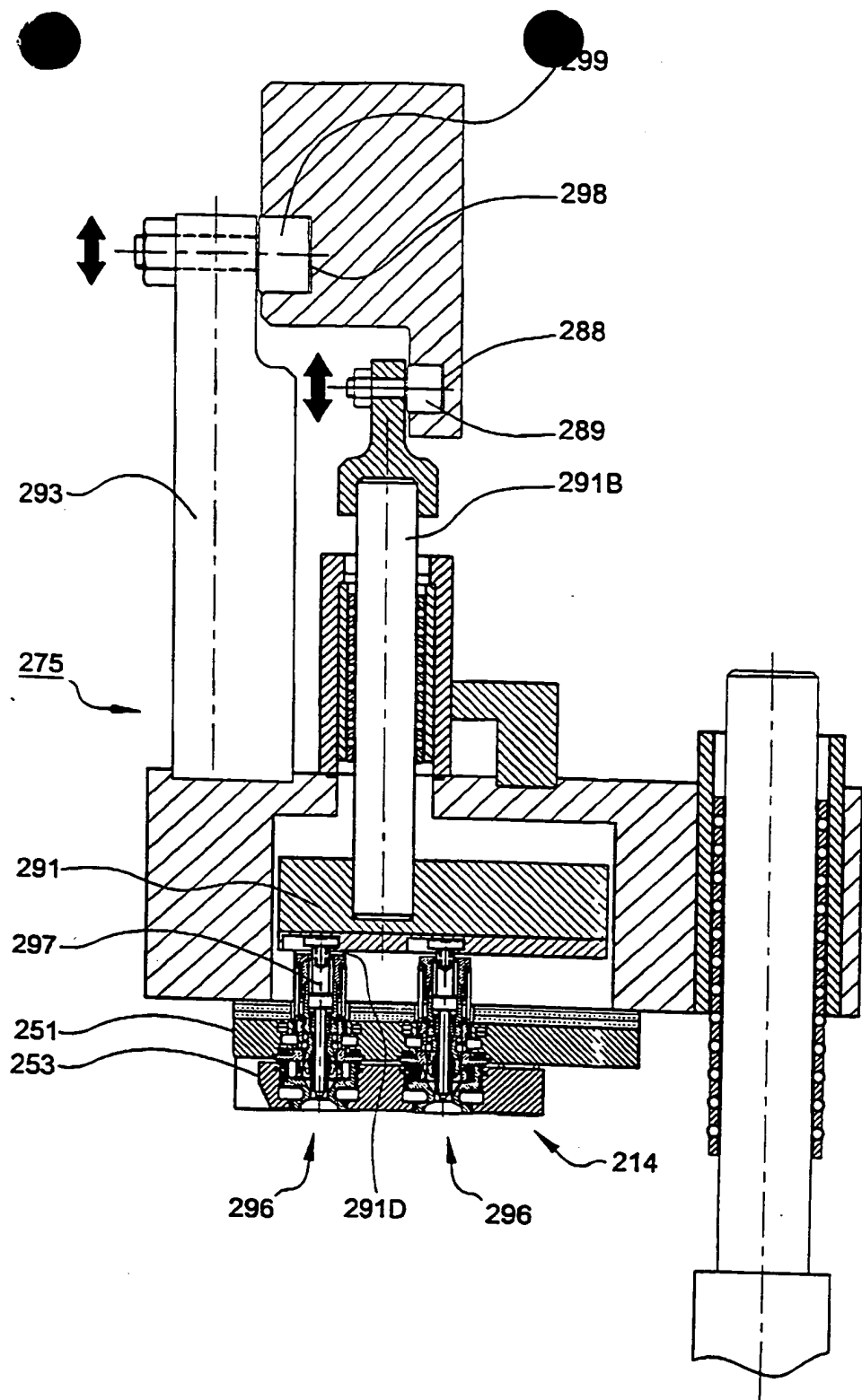


FIG. 51

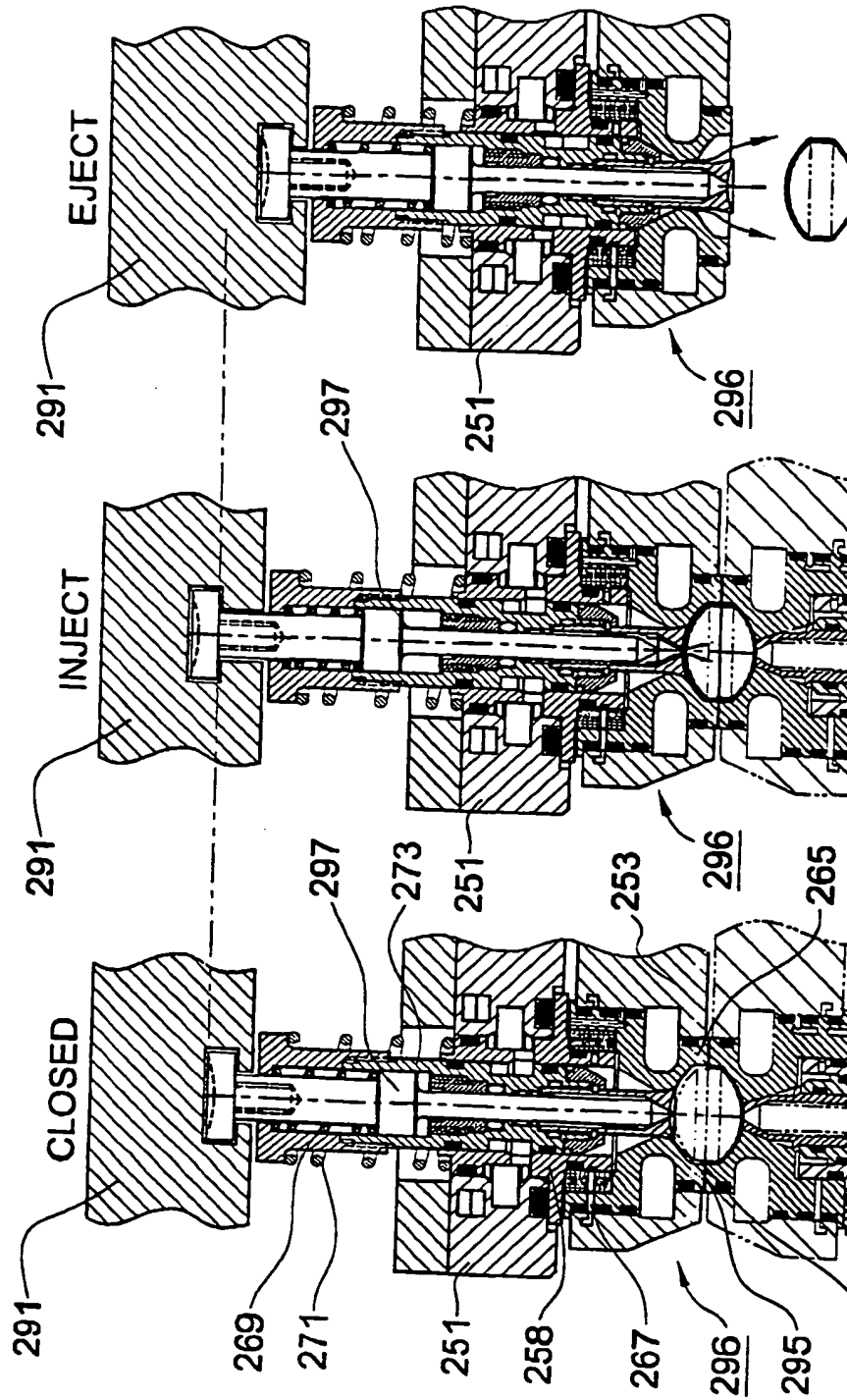


FIG. 52

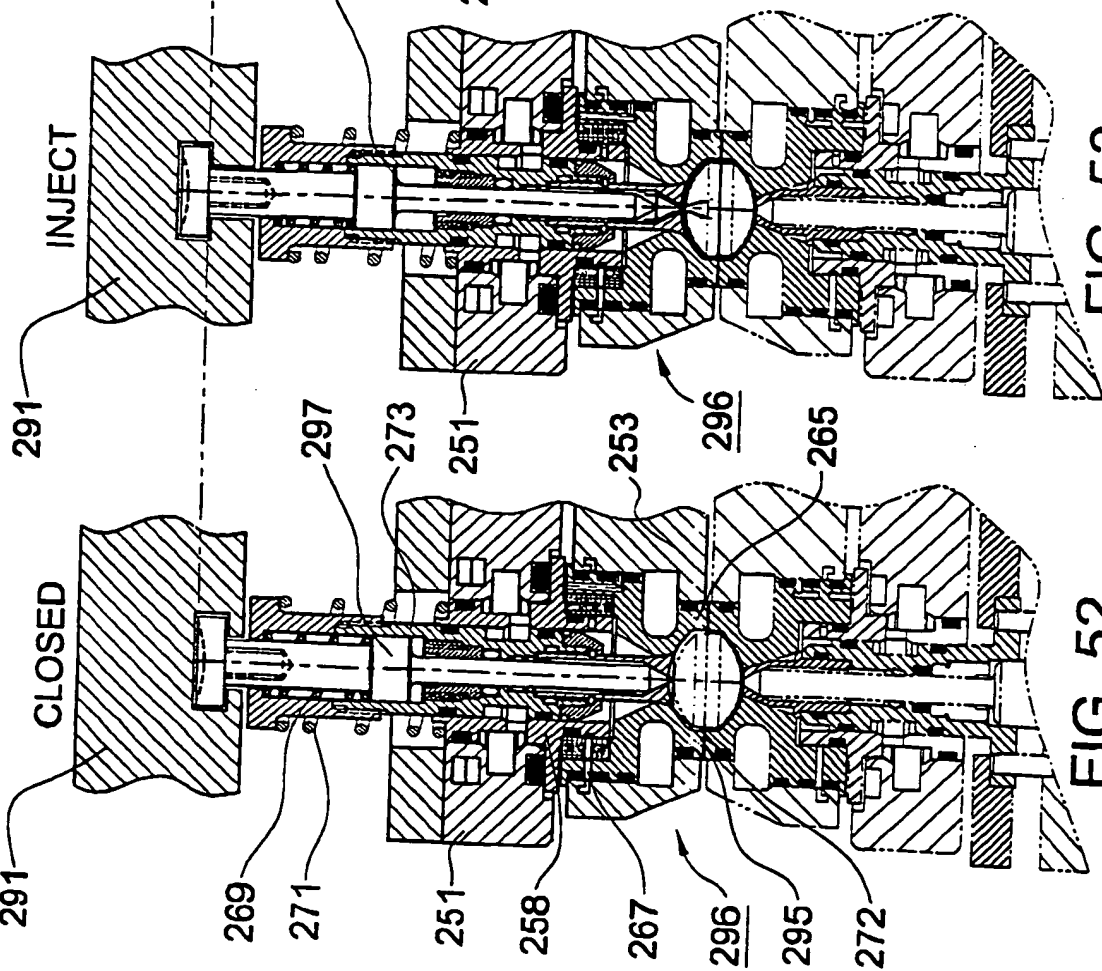


FIG. 53

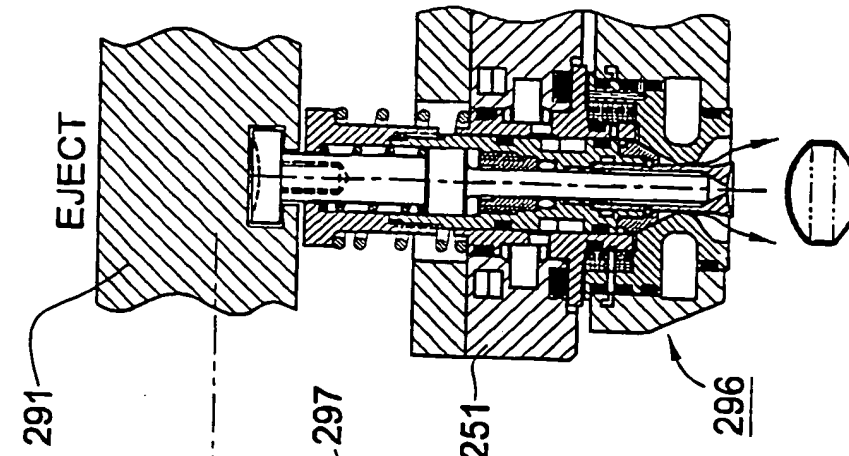


FIG. 54

FIG. 55

HOT CYCLE

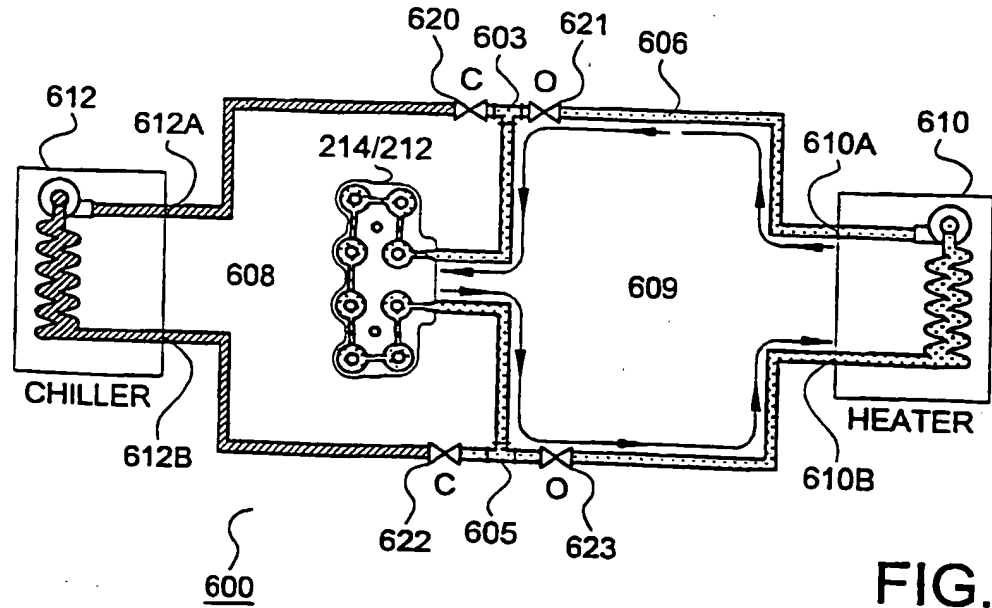
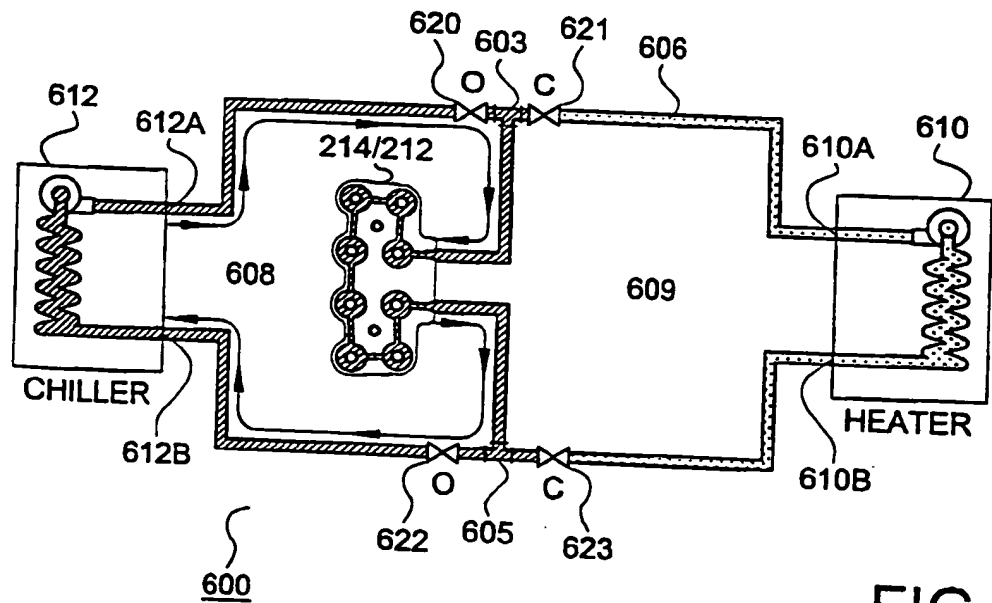


FIG. 55

COLD CYCLE



O= VALVE OPEN
C= VALVE CLOSED

FIG. 56

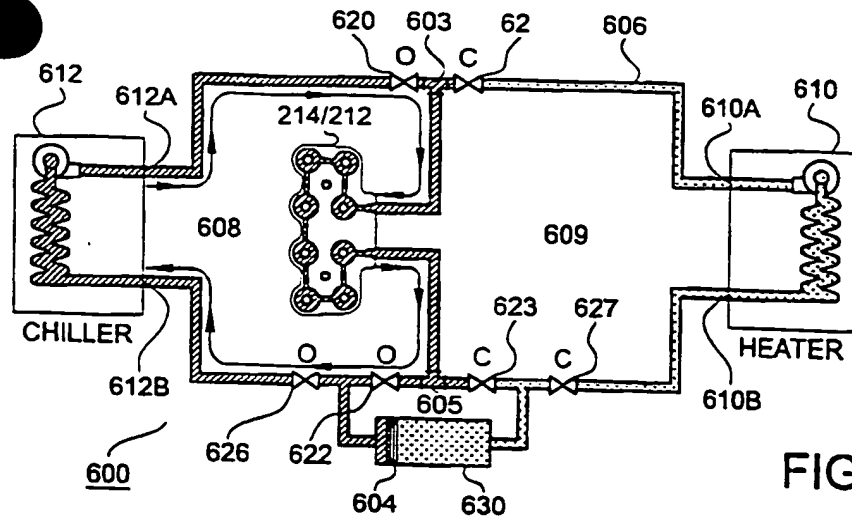


FIG. 57

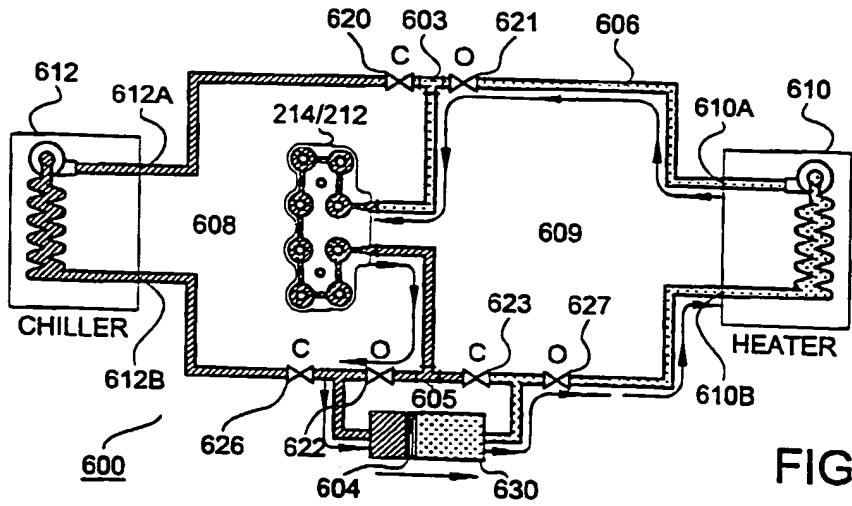


FIG. 58

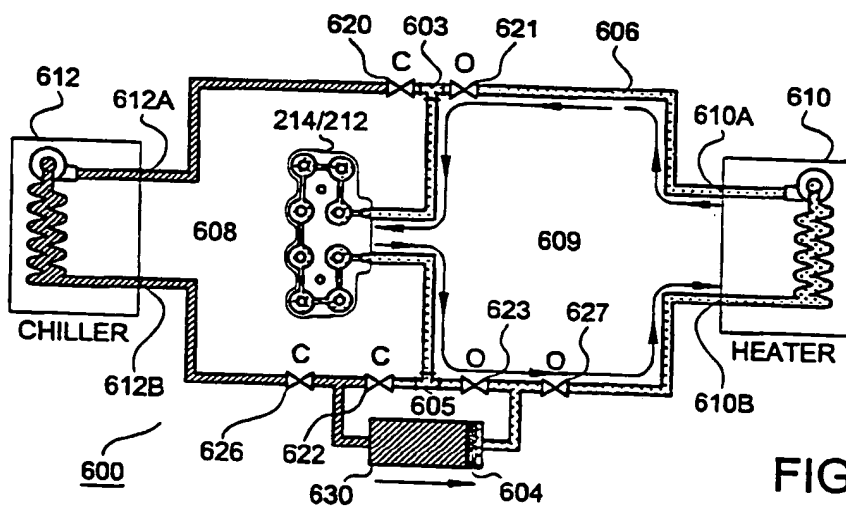


FIG. 59

O = VALVE OPEN
C = VALVE CLOSED

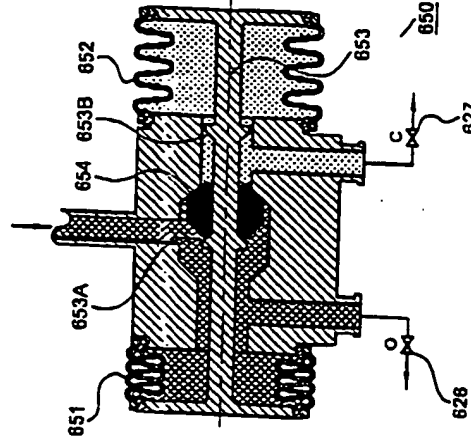
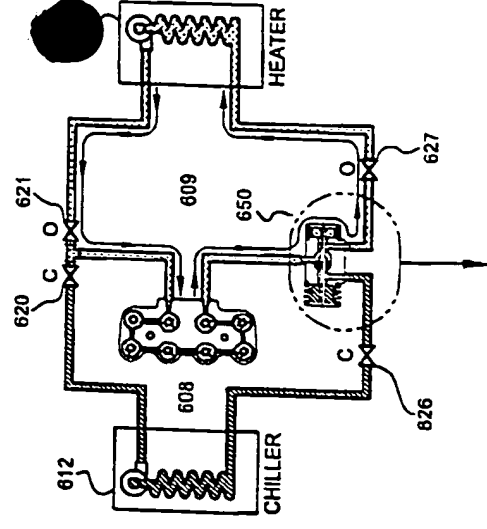
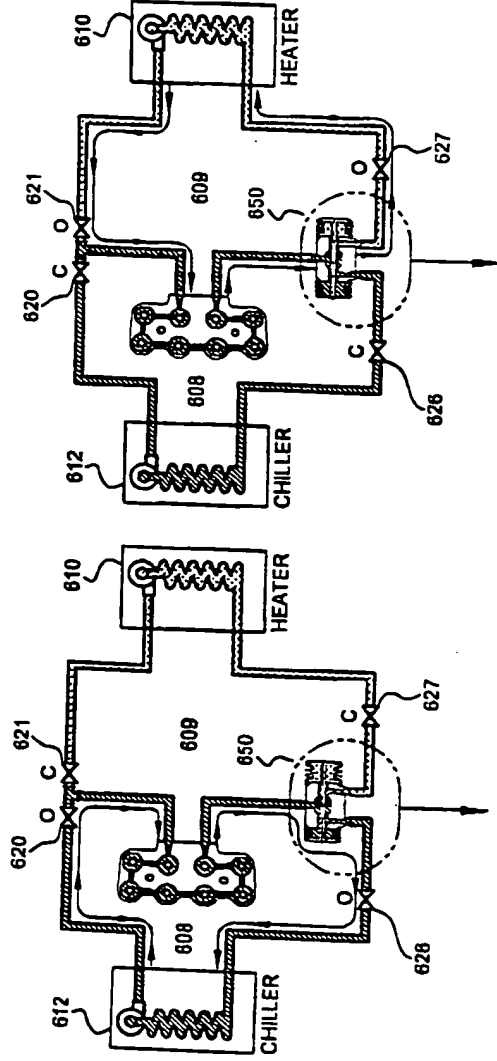


FIG. 60

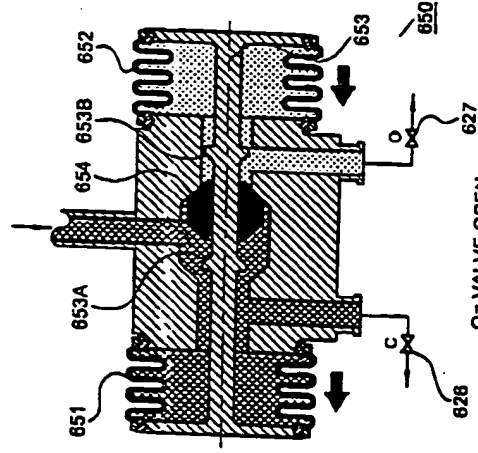


FIG. 61

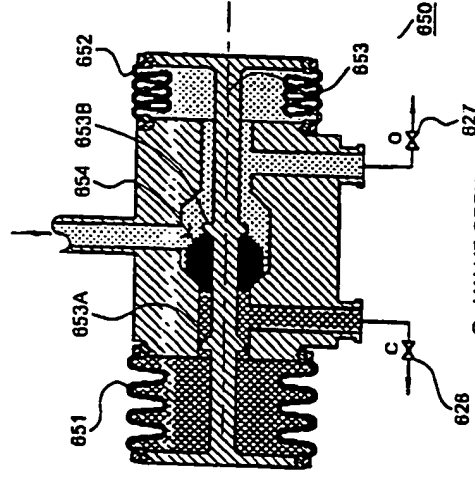


FIG. 62

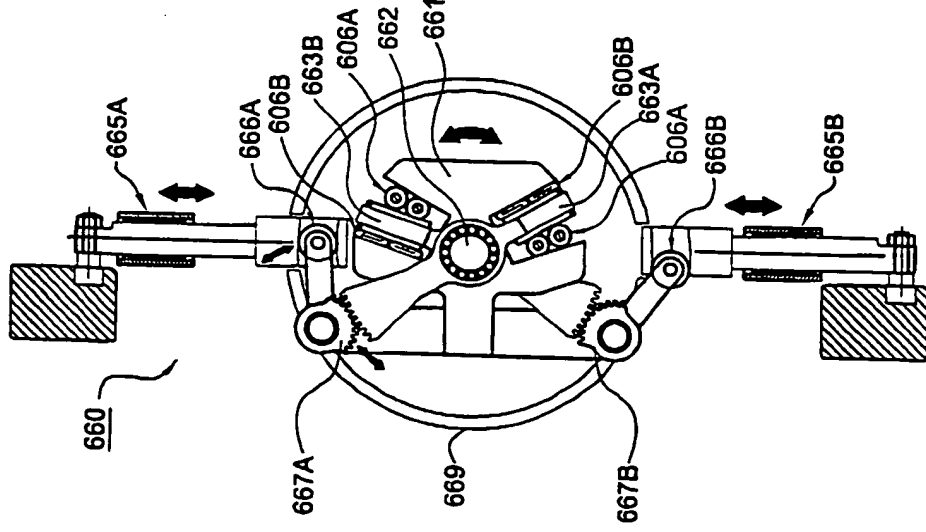


FIG. 63

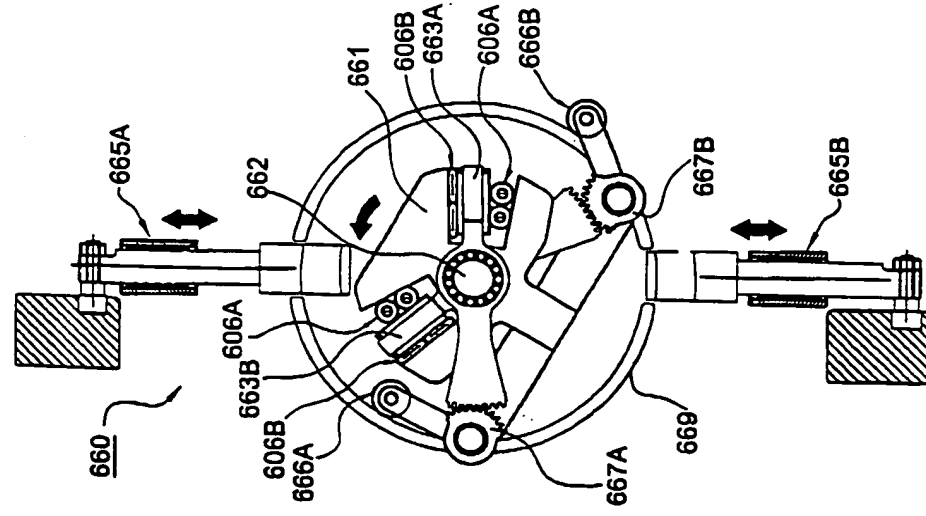


FIG. 64

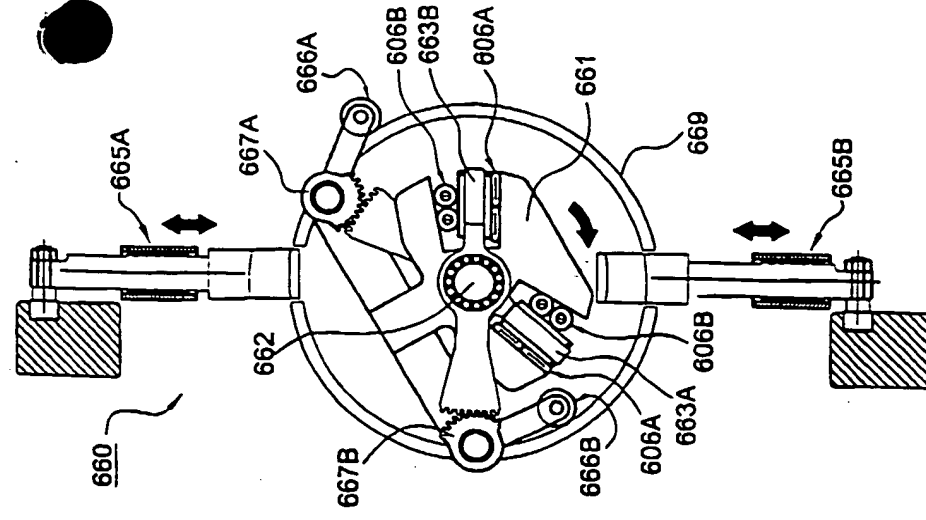


FIG. 65

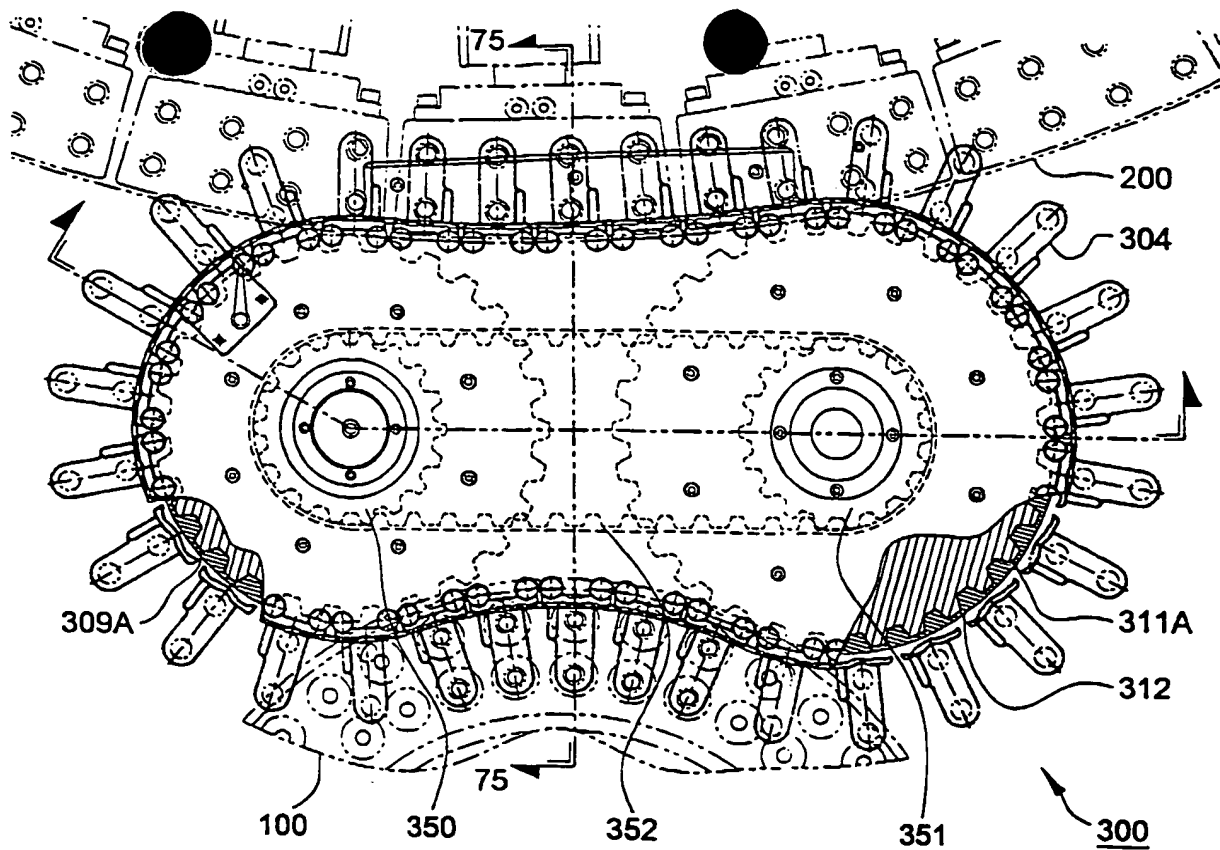


FIG. 68

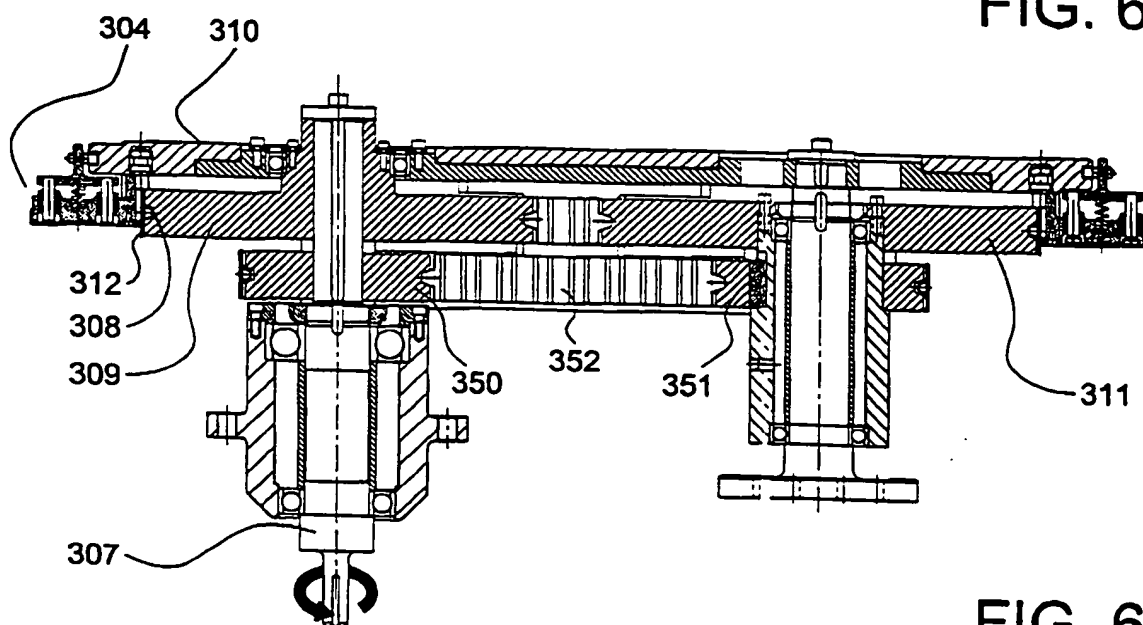


FIG. 69

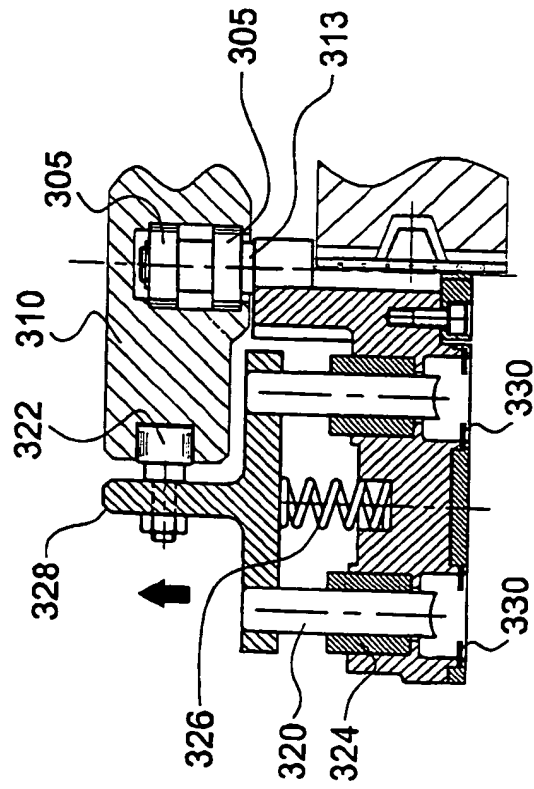


FIG. 70

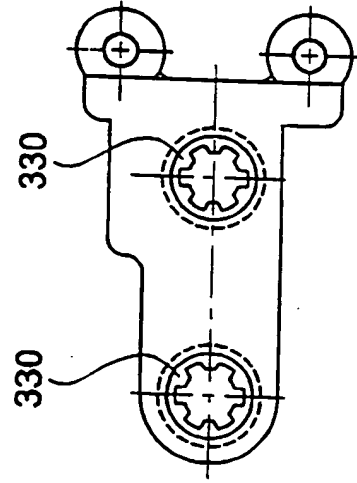


FIG. 71

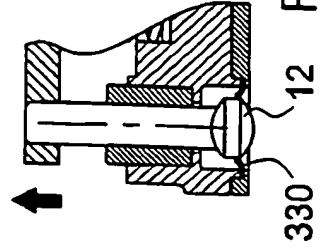


FIG. 72

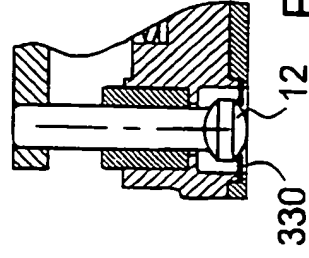


FIG. 73

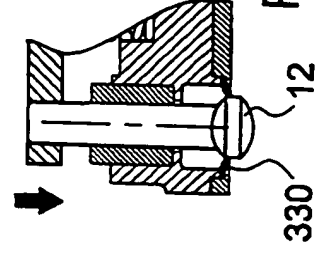


FIG. 74

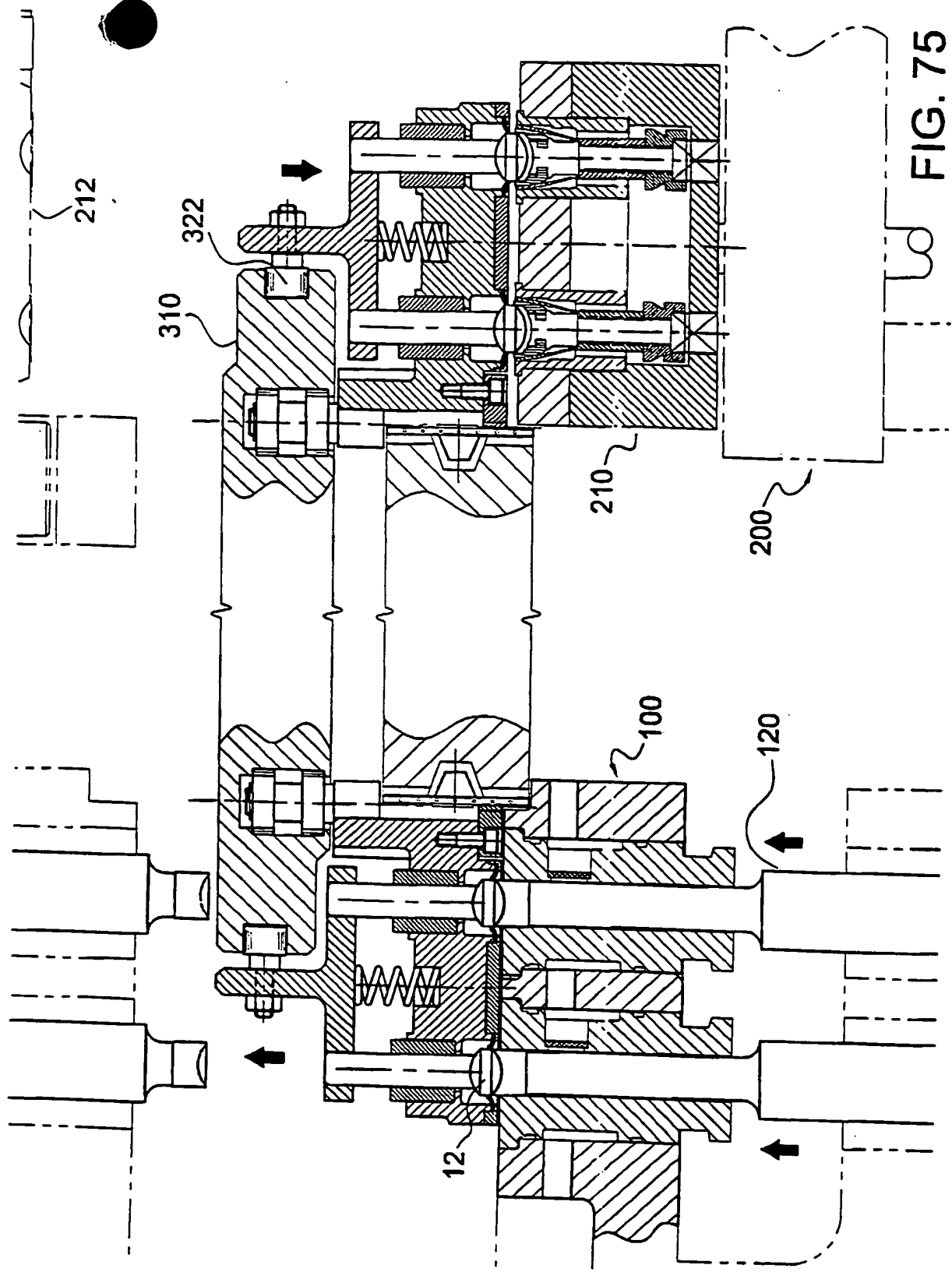


FIG. 75

FIG. 76

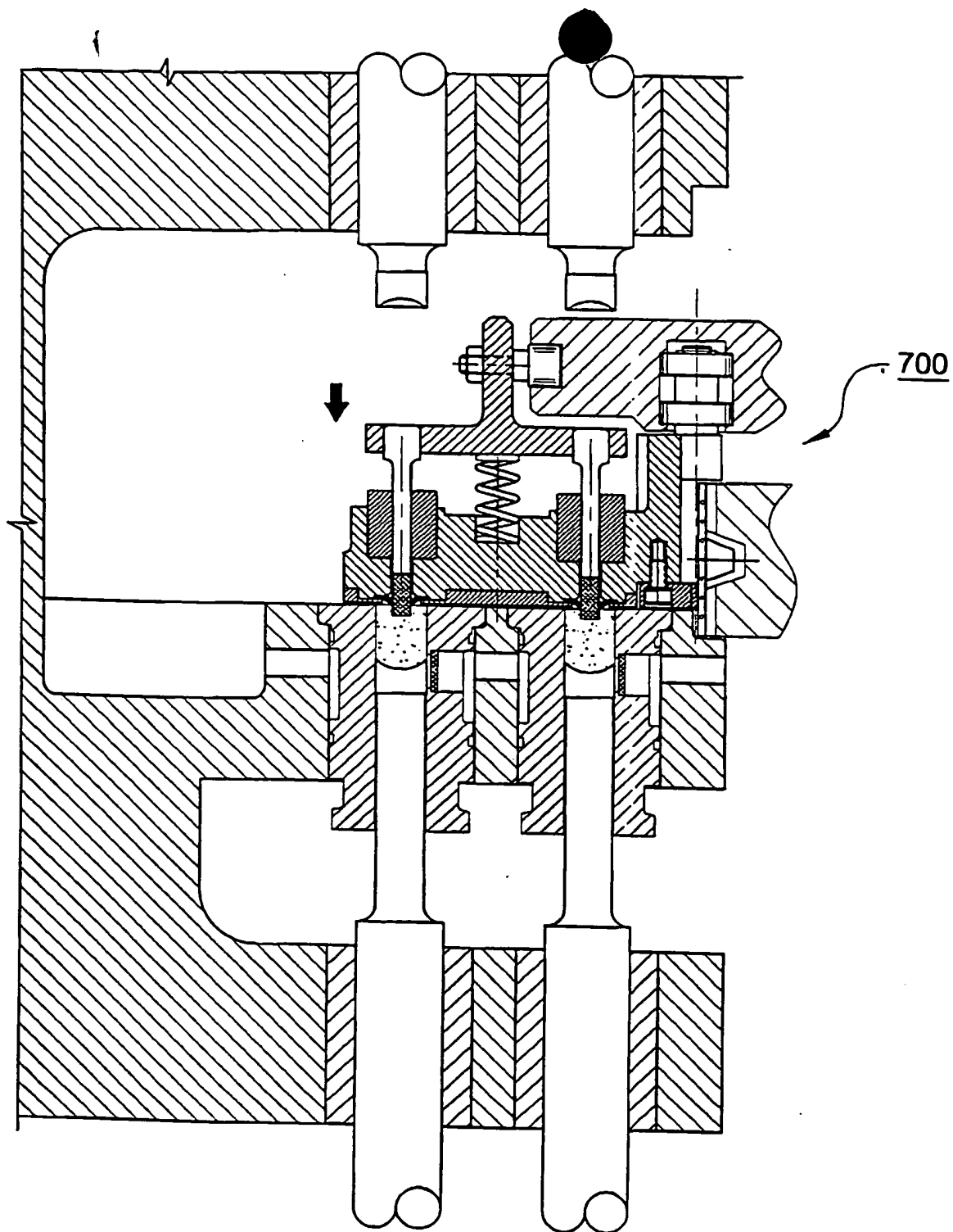


FIG. 76

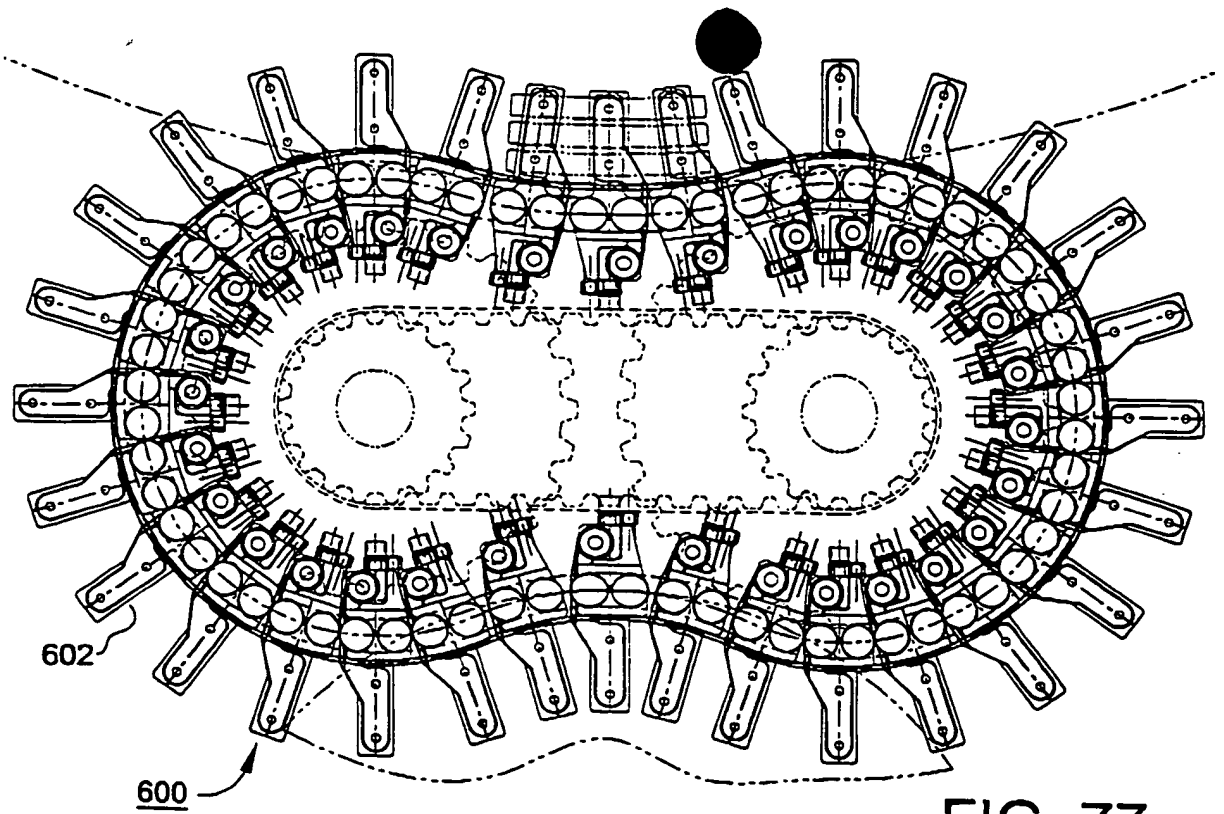


FIG. 77

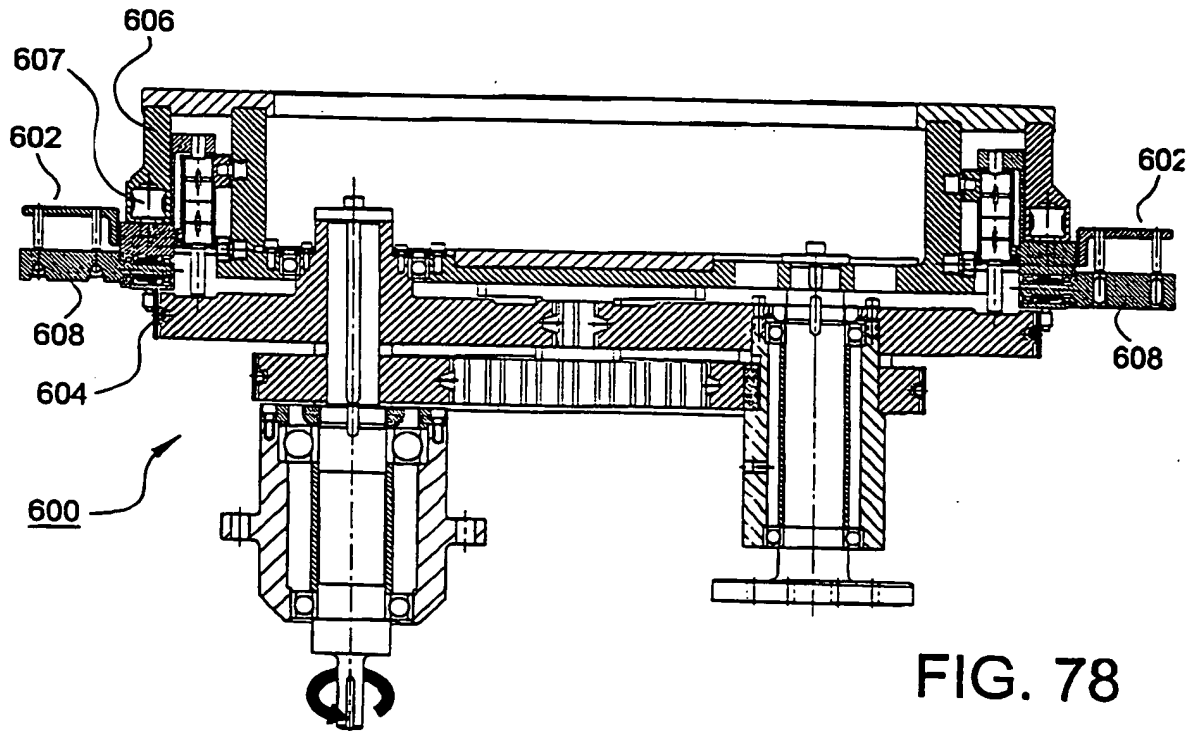


FIG. 78

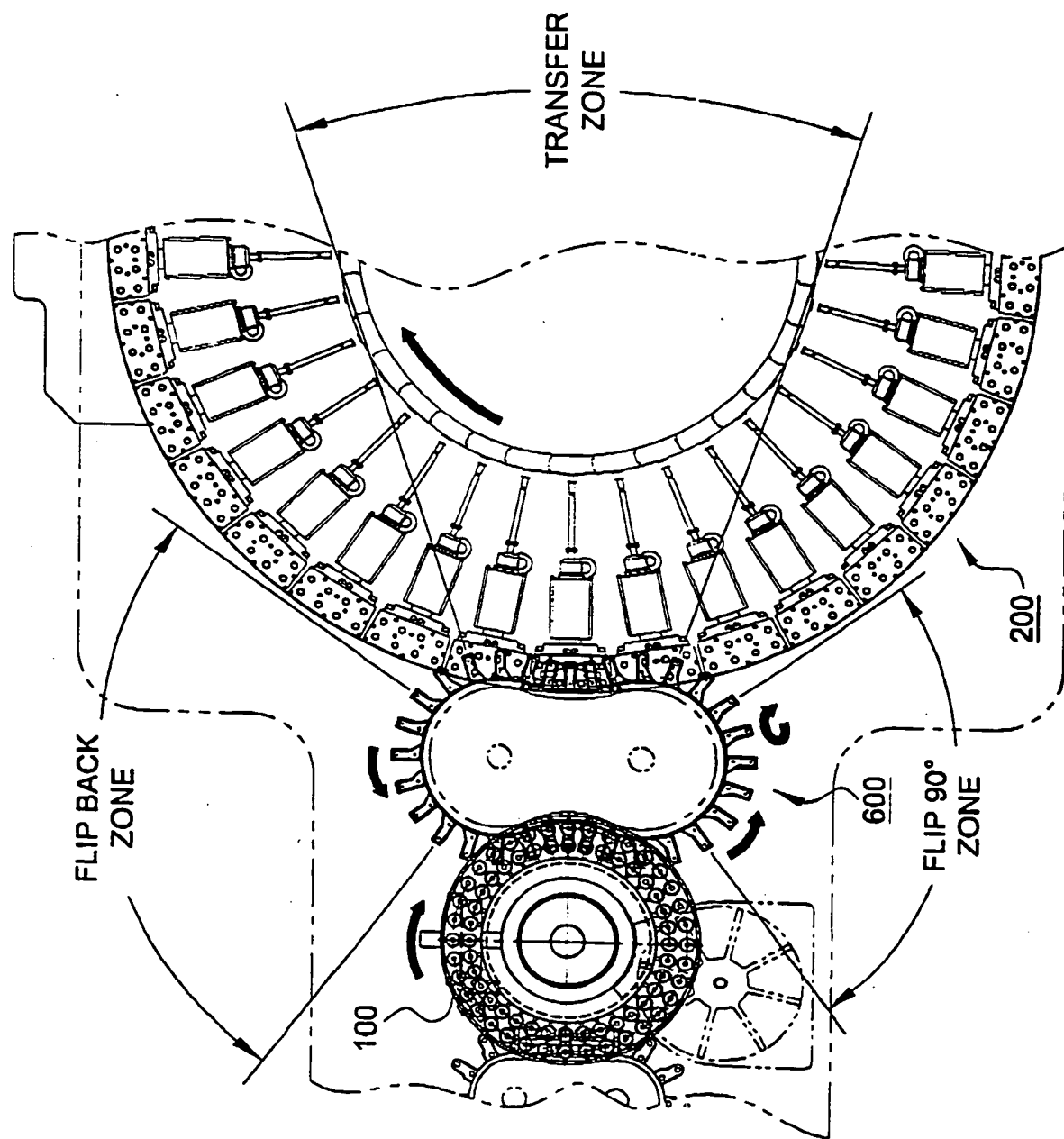


FIG. 79

FIG. 80

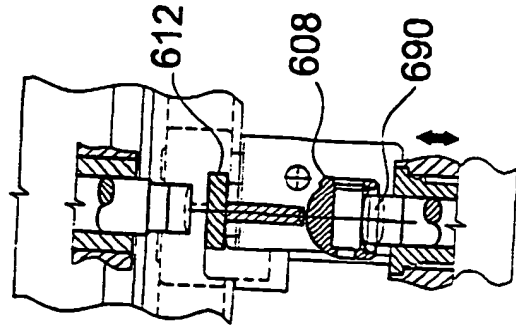


FIG. - 81A

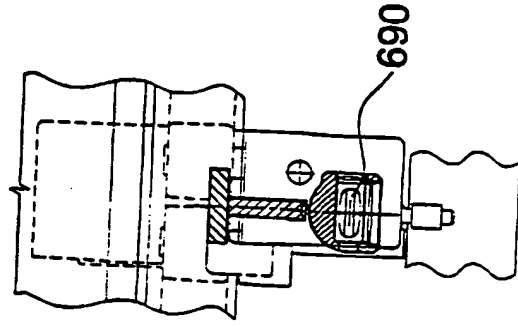


FIG. - 81B

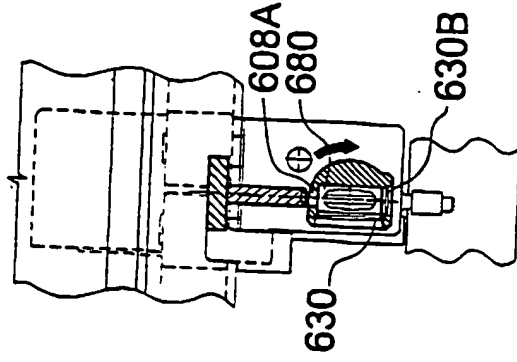


FIG. - 81C

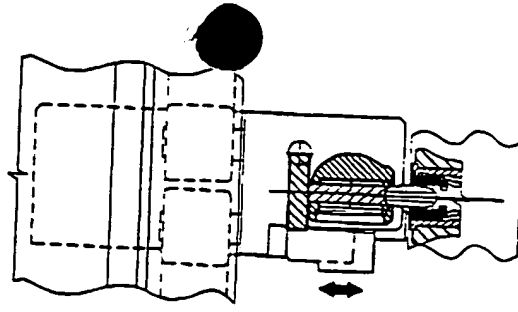


FIG. - 81D

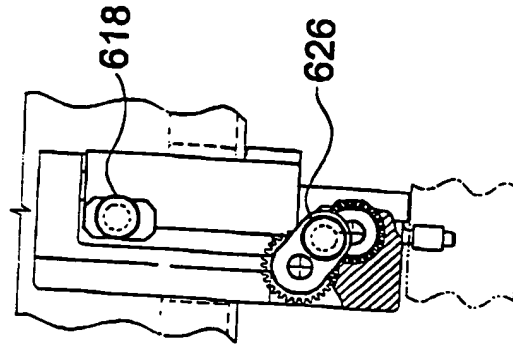


FIG. - 81E

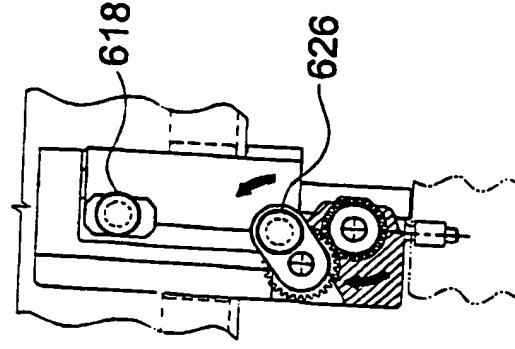


FIG. - 81F

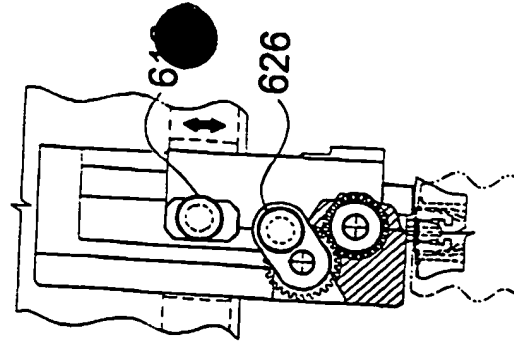


FIG. - 81G

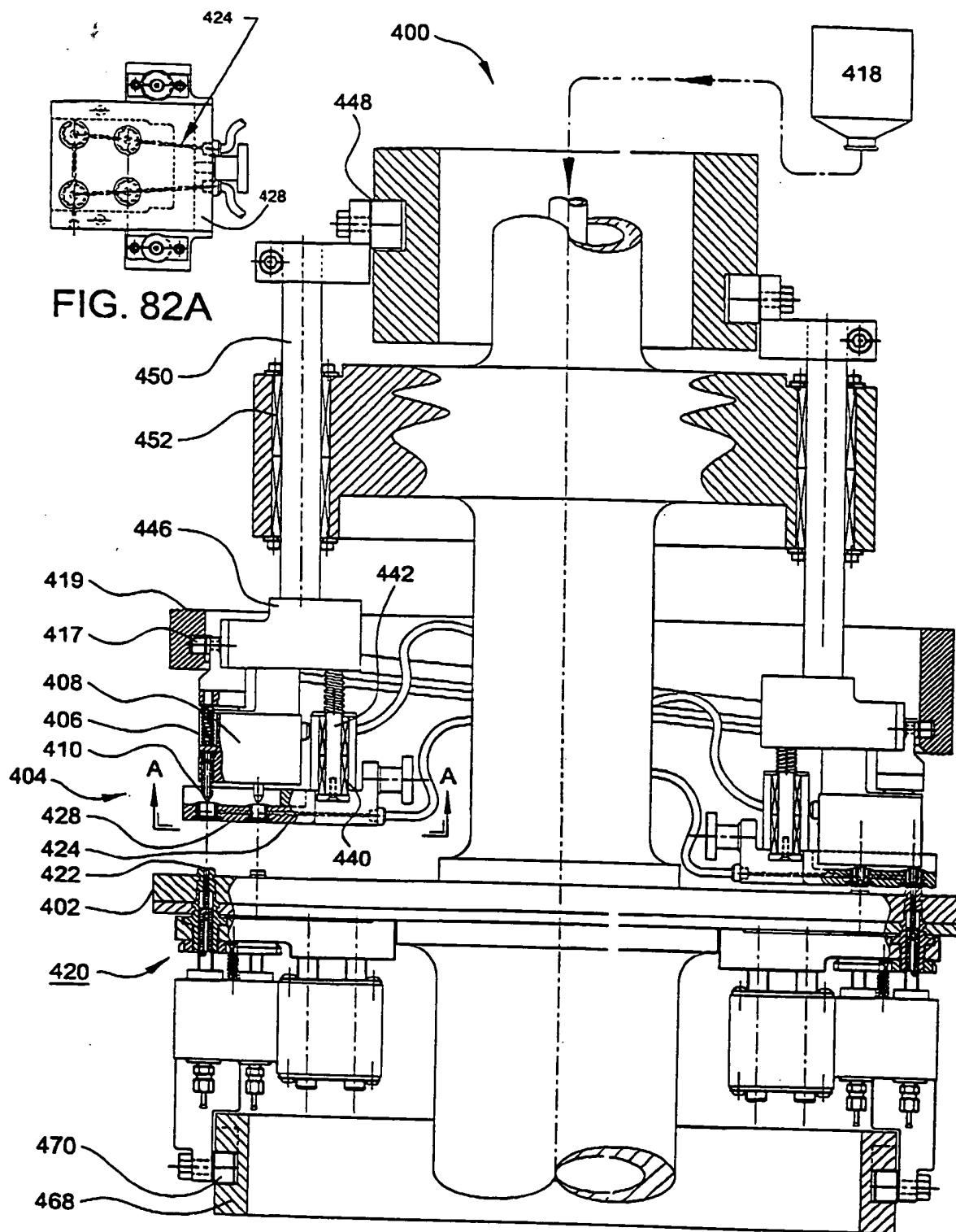


FIG. 82A

FIG. 82

102260" 62699660

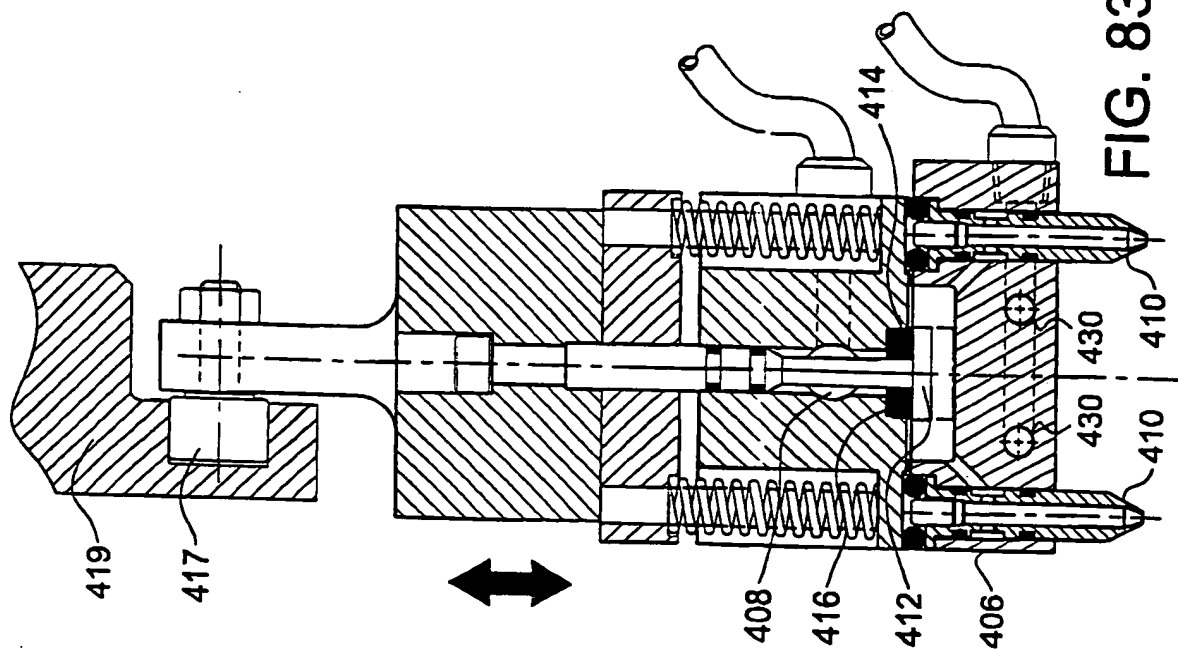


FIG. 83

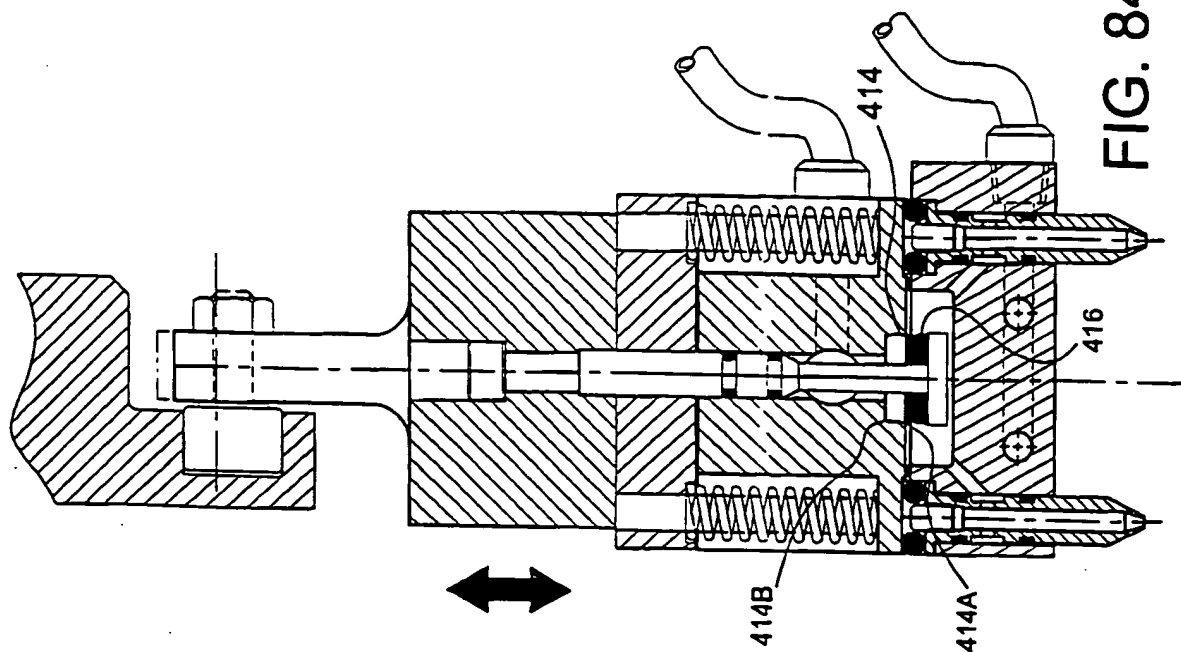


FIG. 84

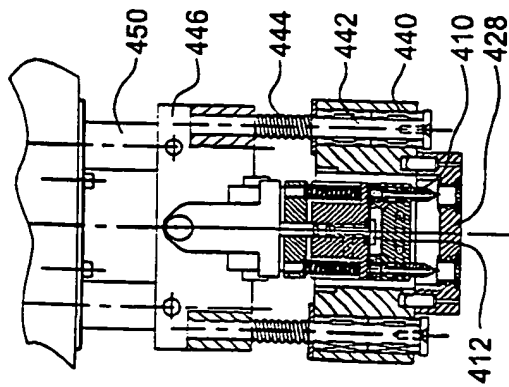


FIG.- 85A

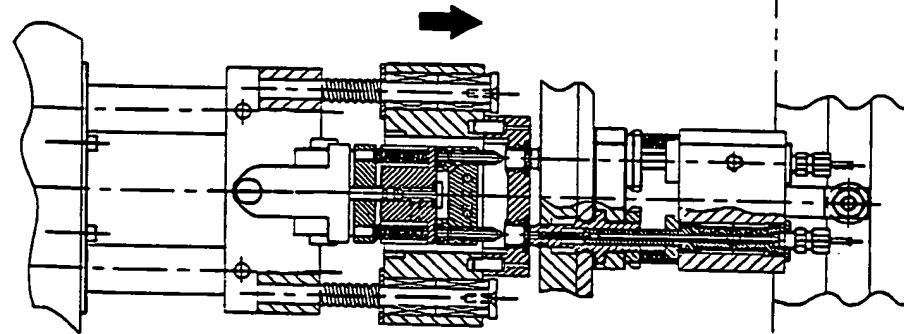


FIG. - 85B

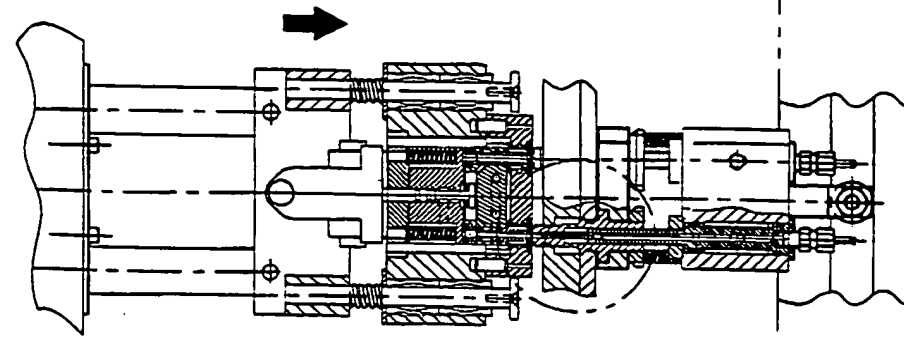


FIG.- 85C

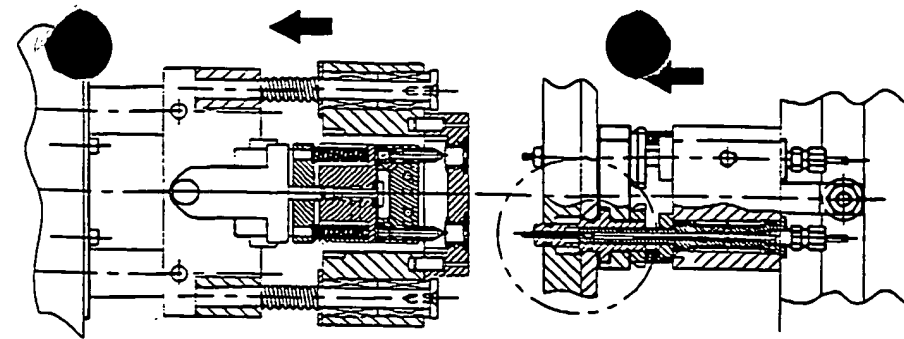


FIG.- 85D

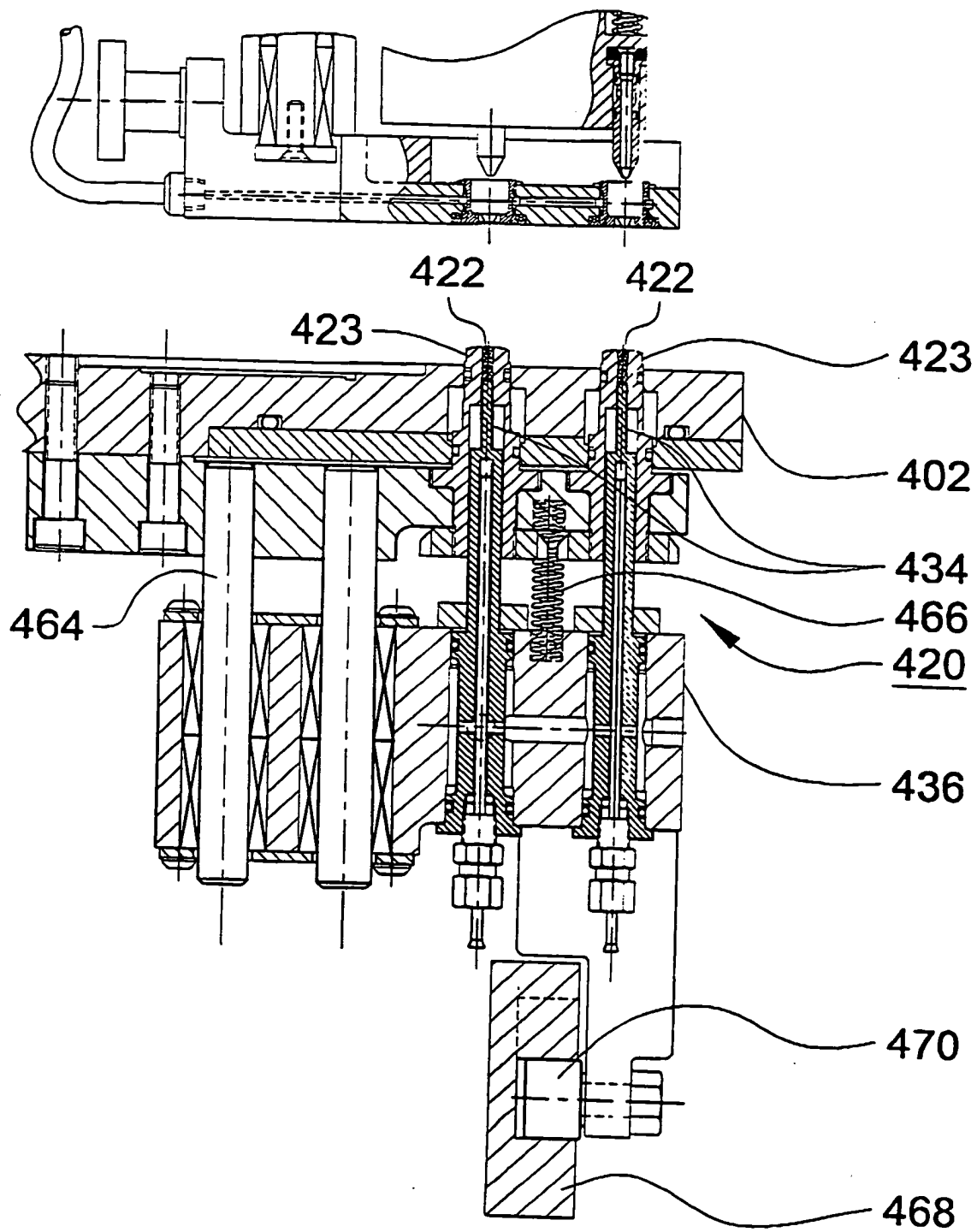


FIG. 86

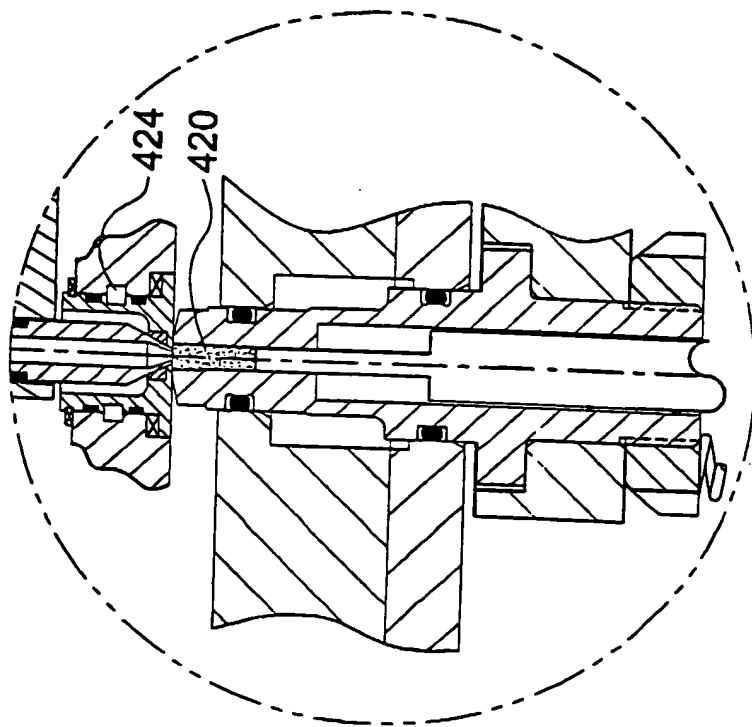


FIG. 87

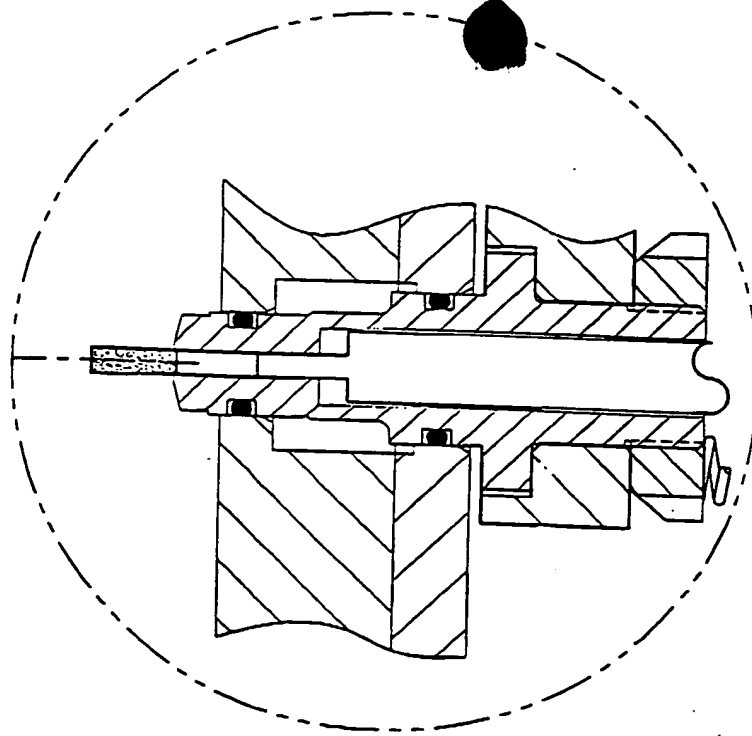


FIG. 88

FIG. 89

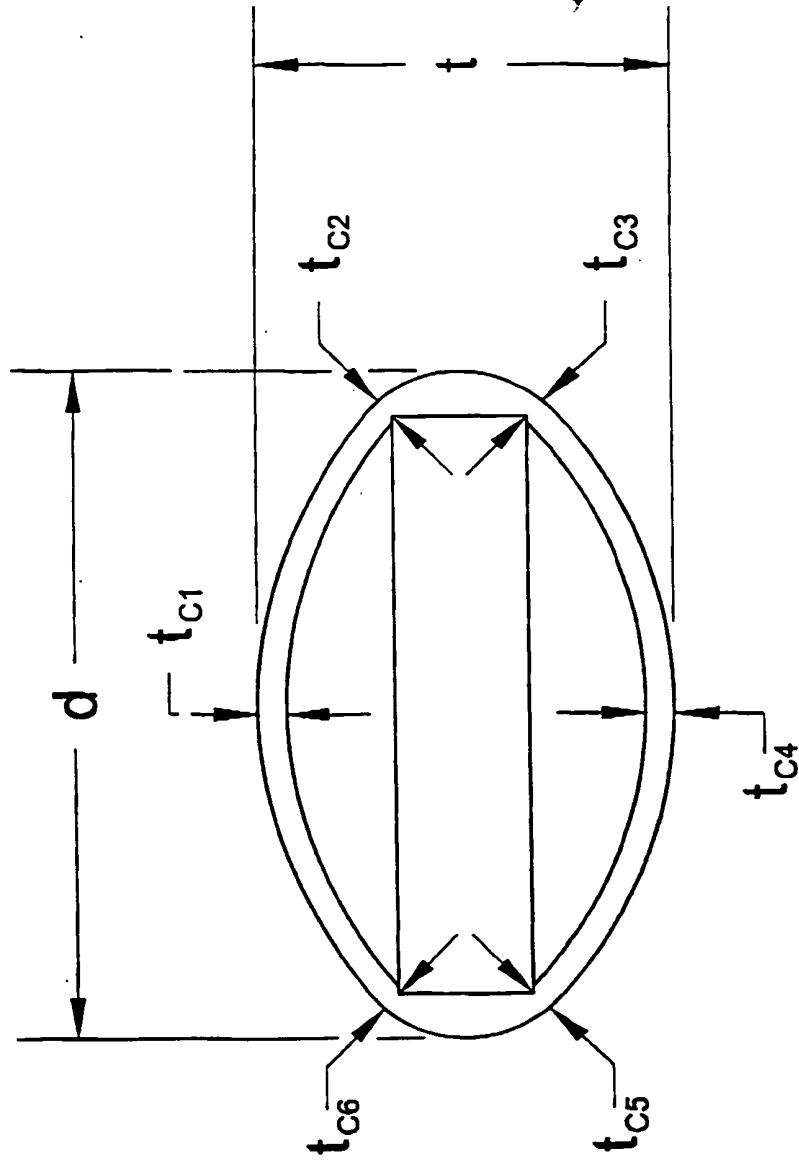


FIG. 89